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The IRON AGE

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THE IRON AGE, published every Thursday by the *CHILTON CO. (INC.)*. Entered as second class matter November 8, 1932, at the Post Office at Philadelphia under act of March 3, 1879. $8 yearly in North America and South America. Foreign $15. Vol. 150, No. 19.

NOVEMBER 5, 1942
VOL. 150, NO. 19

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Member, Audit Bureau of Circulations
Member, Associated Business Papers
Indexed in the Industrial Arts Index. Published every Thursday. Subscription Price North America, South America and U. S. Possessions, $8; Foreign, $15 a year.
Single copy, 35 cents.
Cable Address "Ironage N. Y."

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Owned and Published by
CHILTON COMPANY
(Incorporated)

Executive Offices	Editorial and Advertising Offices
Chestnut and 56th Sts. Philadelphia, Pa. U.S.A.	100 East 42nd St. New York, N. Y. U.S.A.

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Founded in 1842

Completes One Hundred Years of Steel-Service

One hundred years ago, on a bleak October day, Joseph T. Ryerson set out from Philadelphia for the West. On November 1, 1842, after nine days' travel by train, stagecoach and lake steamer, he arrived in Chicago, a small town of about 6,000 and set up his little iron store—the first west of Pittsburgh—and started a business which was destined to grow to be the largest steel warehouse organization in the world.

Through a century of peace and war—good times and bad—Ryerson has proved a prompt, reliable source for steel of dependable quality. From the pioneer establishment of 1842, has sprung a network of ten great steel-service plants, strategically located to serve the principal industrial areas.

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THE IRON AGE

NOVEMBER 5, 1942

ESTABLISHED 1855

The Spotlight on Salesmen

SOME people have said that selling—and salesmen—are out for the duration. That orders, henceforth, will be given and not taken. That in this sellers' market, you might as well put the sales ship in drydock, pull in the oars and let down the anchor.

I have never believed in this theory or assumption. I believe that to build a business, to run it successfully and to keep it going, you must depend heavily upon those enthusiastic and can't-be-downed extraverts who fall in the category of salesmen.

Most of us, in industry and business, are occupied too much with looking in to do any looking out. But not so with salesmen.

It does not matter what kind of a product a real salesman has to sell, as long as it is a good one. And, sobeit this product is available to him to sell, as most products today are not.

This lack of products to sell has made some people in Washington and elsewhere somewhat skeptical of the value of selling. Therefore, it is a most refreshing note to find that in what is probably the most critical situation that America faces today, the United States Government, through the War Production Board, has turned to the selling profession for immediate aid in solving a serious problem.

This problem is the collection of six or seven million tons of dormant industrial scrap during the latter months of 1942 and the 12 months of 1943.

The salesmen of America are now being recruited for Uncle Sam's Service, for service as important, if not more so, than the service of those who so gallantly fought at Bataan or who are now so gallantly fighting at Guadalcanal.

Make no mistake about it, we are now on the defensive. Our retreats and defeats have been glorious but glory does not win a war. *What wins a war is steel.*

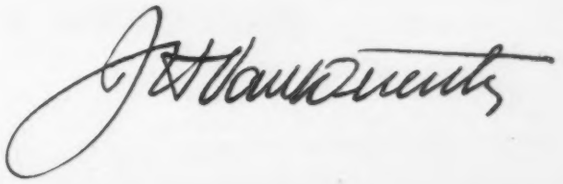
The Axis powers have the edge on us in preparation; 10 years against a little more than one. They have the edge on us in blind fanaticism. They have the edge on us in military experience.

But we have the edge on them in steel production, provided we can keep our steel mills going. And this depends entirely upon our ability to unearth and put to use our dormant scrap.

So the salesmen of America are being recruited for this great task. And it will indeed be both a challenge to and a test of the social value of salesmanship.

Because it is a convenient handle for this drive, the National Federation of Sales Executives has been made the nucleus of this action, together with the steel industry salesmen and the steel warehouse salesmen of America.

But this is no exclusive party. If you are a salesman who does not happen to be affiliated with any of these organizations, but who wants to do his part in helping to win this war, I ask that you write me so that I can put you in touch with a real opportunity to render a substantial service to your country.



WARNING!

The public and industry probably do not realize how close many steel mills came last month to closing down a portion of their productive capacity due to the lack of scrap.

In fact, Inland actually was forced to shut down two furnaces for a time. A drastic curtailment of America's steel production, because of the lack of scrap, would be a national calamity.

Today, scrap is coming in somewhat faster than we are using it, but we despair that we will build up a backlog sufficiently large to provide for all the winter months, when very little scrap moves. We *must* build large scrap piles during these fall months to carry us through until April, or we are certain to have a serious breakdown in steel production.

Anything that possibly can be done to give everyone a better understanding of this critical situation will be of service to our country.

INLAND STEEL CO.

Chicago

Acid and Basic Bessemer Refractories

o o o

By J. H. CHESTERS

Central Research Department, United Steel Companies, Ltd., Stocksbridge, England

o o o

. . . The author continues his series of articles on steel plant refractories with a discussion in two parts, of which this is the first, on materials and construction of bessemer converter linings and bottoms. Here he describes stone, fireclay, and cement for bessemer use and outlines respective advantages of acid and basic refractories.

THE two features of the bessemer process that cannot fail to strike the refractories engineer are the extremely rapid rate of wear of the bottom compared with that experienced in the open hearth furnace, and the enormous potential output in relation to the size of the installation. Thus a medium sized converter can turn 25 tons of iron into steel in about 12 min., whereas an 80-ton open hearth furnace often takes 12 hr. to achieve a similar object. As shown in Table I, the relative outputs per square foot of hearth area are about 70 to 1.

As will be seen later, the rapid production rate more than offsets the rapid wear on the refractories, which cost per ton of steel about 20c. as compared with nearer $1 for the open hearth process.

For acid work, most of the converters have a capacity of about 25 tons, though 10-ton converters are also used. For the basic process, 25 tons may again be considered as the standard size, but in Germany converters of 40-ton capacity and over are also employed. Given two acid converters of 25-ton capacity working full out, it is stated that an output of over 20,000 tons of steel a week can be obtained. (Figs. 1, 2 and 3.)

Other factors are, however, of more importance than production rates and refractories costs; for example, the quality of the product, the availability of suitable grades of hot metal and the general economics of the problem as affected by such questions as the relative prices of pig iron and scrap. Hence, in spite of these two big advantages only a small proportion of the world's steel is made by the bessemer process. In America, the acid bessemer process is used, in Germany the basic bessemer (more correctly known as the Thomas process), while in Great Britain both acid and basic processes are employed.

In both processes, the molten iron from the blast furnaces comes, via a mixer, to the bessemer converters and the amount of scrap used is small. It is generally virgin scrap and is introduced toward the end of the blow in the acid process when it serves to adjust the temperature of the metal. In the basic process, it is thrown in soon after the blow commences.

It is quite possible that both the acid and basic bessemer process may come back more into the picture in the not too distant future, possibly as part of a bessemer-open hearth duplex process designed to get large outputs for relatively small capital and operating costs. Hence, although the present output is only a small proportion of the whole, a study of bessemer refractories may be of general interest.

Mixers

It is rare that iron from the blast furnace is poured directly into bessemer converters. The normal procedure is for it to pass via large cylindrical mixers which act as reservoirs (Figs. 4, 5 and 6). The function of these mixers is to maintain a steady supply of hot metal for the bessemer, by taking up the fluctuations in the supply from the blast furnace, and to give an iron of more consistent analysis, and hence a more standard operation of the bessemer process. The capacity of the mixers varies greatly, being as small as 250 tons and as large as 1400 tons. Thus one acid bessemer plant with a potential capacity of 40,000 tons a week, has two 1300-ton mixers, while another with an output of about 5000 tons a week has only one 400-ton mixer.

The lining of the mixer varies with the process, being generally of silica brick for the acid bessemer, and magnesite brick for the

Previous articles by J. H. Chesters, on steel plant refractories, that have appeared in THE IRON AGE *are:*

"All-Basic Open Hearth Furnaces," Aug. 15 and 22, 1940.

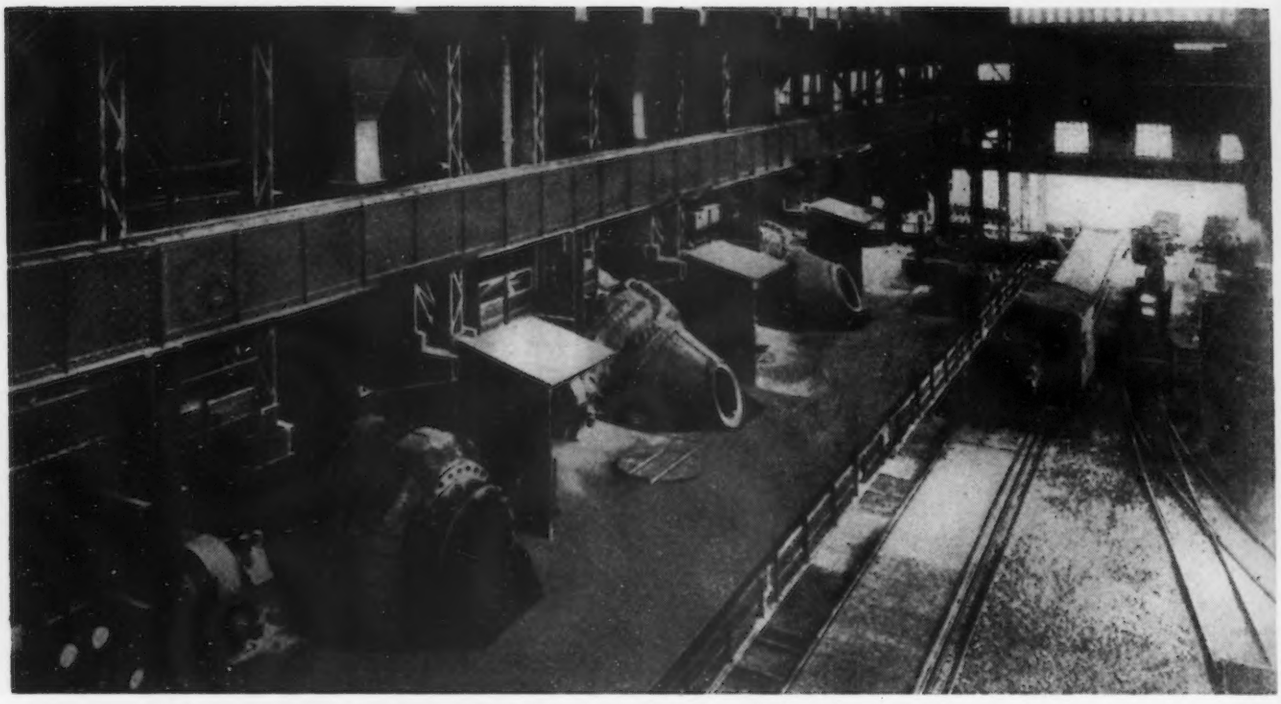
"Steel Plant Refractories," Feb. 6 and 13, 1941.

"Basic Open Hearth Above Sill Plate Level," May 22 and 29, 1941.

"Electric Steel Plant Refractories," March 5 and 12, 1942.

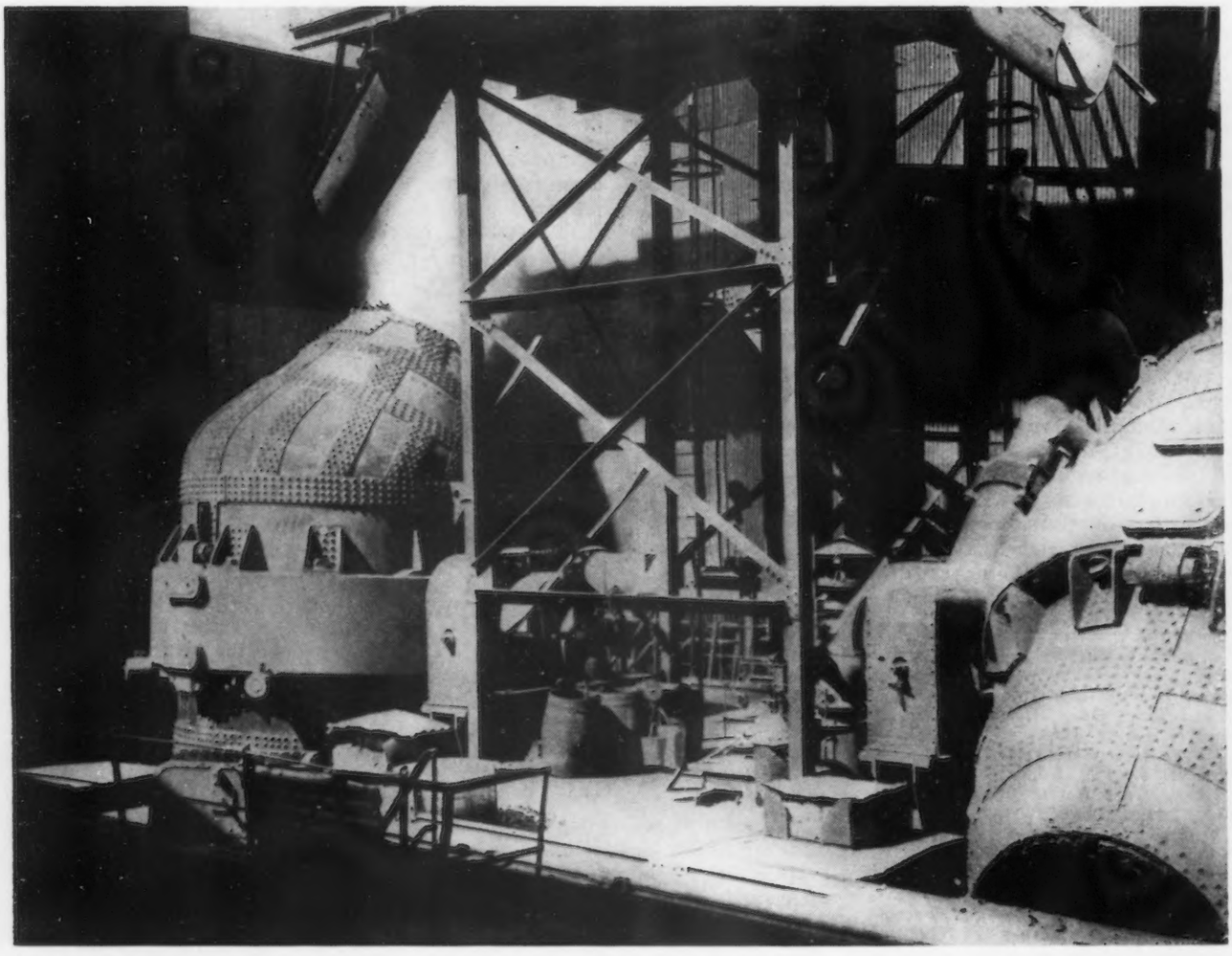
"Acid Open-Hearth Refractories," May 28 and June 4, 1942.

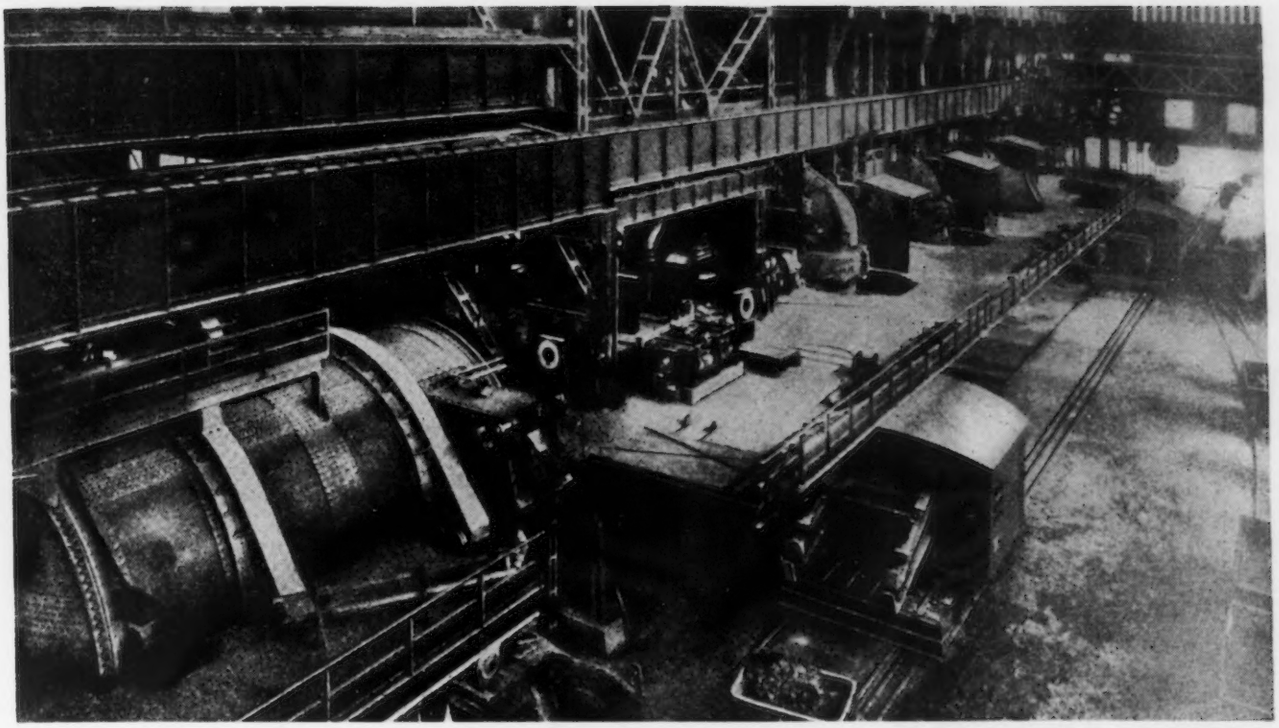
"Soaking Pit and Reheating Furnace Refractories," July 16 and 23, 1942.



ABOVE Fig. 1—Basic bessemer shop showing three 25-ton converters.

BELOW Fig. 2—Twenty-five ton-acid bessemer converter blowing.





ABOVE FIG. 4—Iron from the blast furnace passes into the converters via large cylindrical mixers, such as the one shown in left foreground.

BELOW Fig. 3—Twenty-five ton acid bessemer converter pouring into ladle.

basic bessemer. The lining presents a highly specialized problem. The dimensions of the mixer are great, and since there are often no facilities for additional heating of the metal, good insulation is most important.

Where silica brick is used, a soft fired quality is preferred, presumably due to the reduced risk of thermal spalling and the tight joints associated with after-expansion. Most basic mixers are lined with blocks made from Austrian magnesite and it is essential for these to be adequately fired, to reduce to a minimum the shrinkage which occurs in use. Below the metal level little trouble occurs but at the slag level, which varies considerably with the amount of metal in the mixer, shrinkage is often considerable and may be a cause of premature failure due to blocks becoming loose and falling out. Where magnesite brick are backed directly with insulating brick, the high conductivity of the magnesite (25 B.t.u.) compared with that of the insulating brick (1 B.t.u.) results in an interface temperature only 125 deg. F. or so below that of the working face. Hence although the operating temperatures are comparatively low (2100 to 2370 deg. F.) slag and even metal may penetrate deeply into the blocks. A good deal of research is at present in hand on this important subject, but any discussion of the conclusions reached to date would be premature.

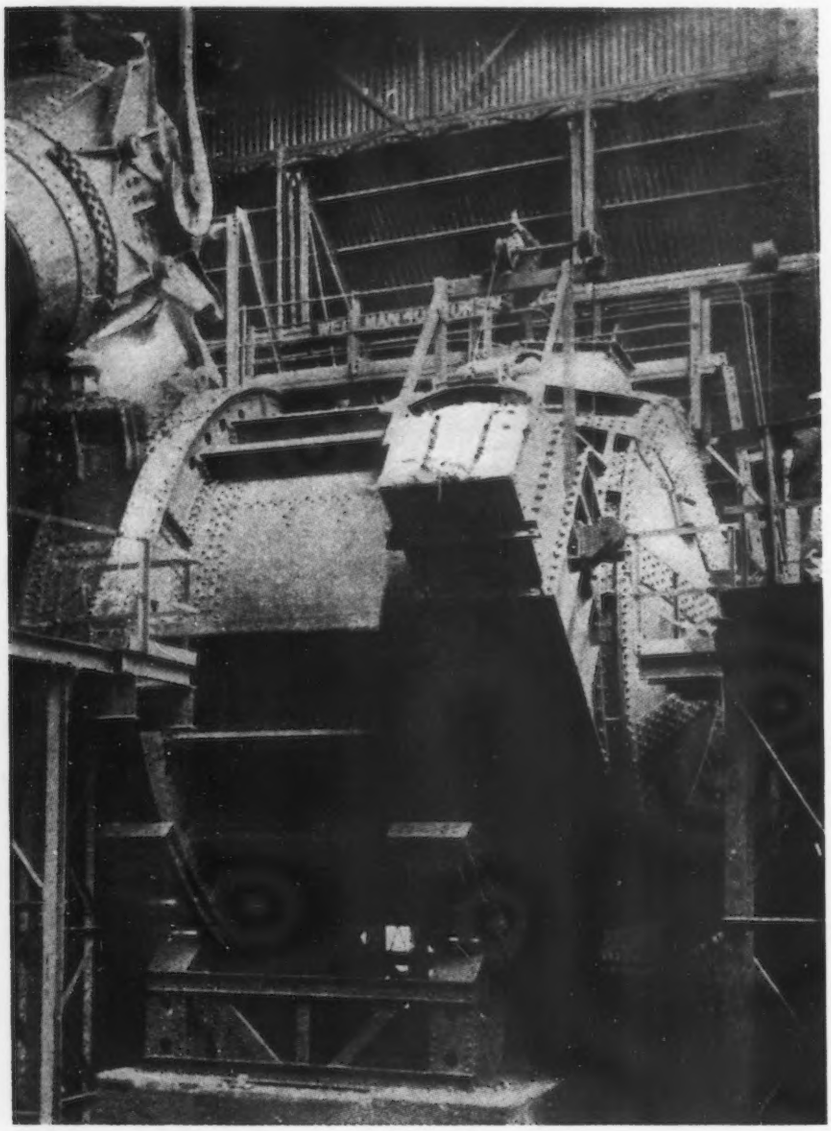


FIG. 5—Acid bessemer mixer of 400-ton capacity. These mixers act also as reservoirs.

Both the acid and basic bessemer converter can be divided into two main sections—the vessel lining, and the bottom, or plug, as it is sometimes called. The lift of the vessel lining is considerably greater than that of the plug, and since the latter is detachable, full use can be made of the life of the vessel lining.

Vessel Linings

The vessels of most of the American converters are lined with sandstone. In some plants quite good results are obtained with more common grades, such as "ironstone" or "firestone," but the best results appear to be given by a special micaceous schist which can be readily cut into rectangular blocks because of its laminated structure. In British acid converters (Fig. 7) the lining is generally of soft fired silica brick. It is surprising that furnaces which operate at such high temperatures can be safely lined with either raw sandstone or brick containing substantial quantities of raw quartz. Conversion of this quartz to cristobalite must take place, at least in the surface layers, and considerable expansion occurs. It is probably the cylindrical shape of the converter body that makes possible such expansion without loss of shape or serious spalling. In some plants the lining is coated before use with a layer of 2 or 3 in. of ganister, but in others the starting up of a new converter lining with unprotected silica brick is standard practice even though these may have a specific gravity as high as 2.52. According to one writer who has studied samples of American micaceous schist, the typical material contains about 90 per cent silica, 3 to 7 per cent alumina and 2 to 4 per cent of iron oxide, while Burr and Rayner state that the so-called fire-stones contain 93 per cent of silica and about 4 per cent of alumina, the remaining 2 to 3 per cent consisting of iron oxide,

TABLE I

	Acid Bessemer Converter	Fixed Open Hearth Furnace (Cold Pig)
Capacity	25 ton	80 ton
Conversion time	12 min.	12 hr.
Hearth area	60 sq. ft.	350 sq. ft.
Production rate:		
Long tons per sq. ft. hearth per hr.	1.40	0.02
Lb. per sq. ft. hearth area per hr.	2800	42.5

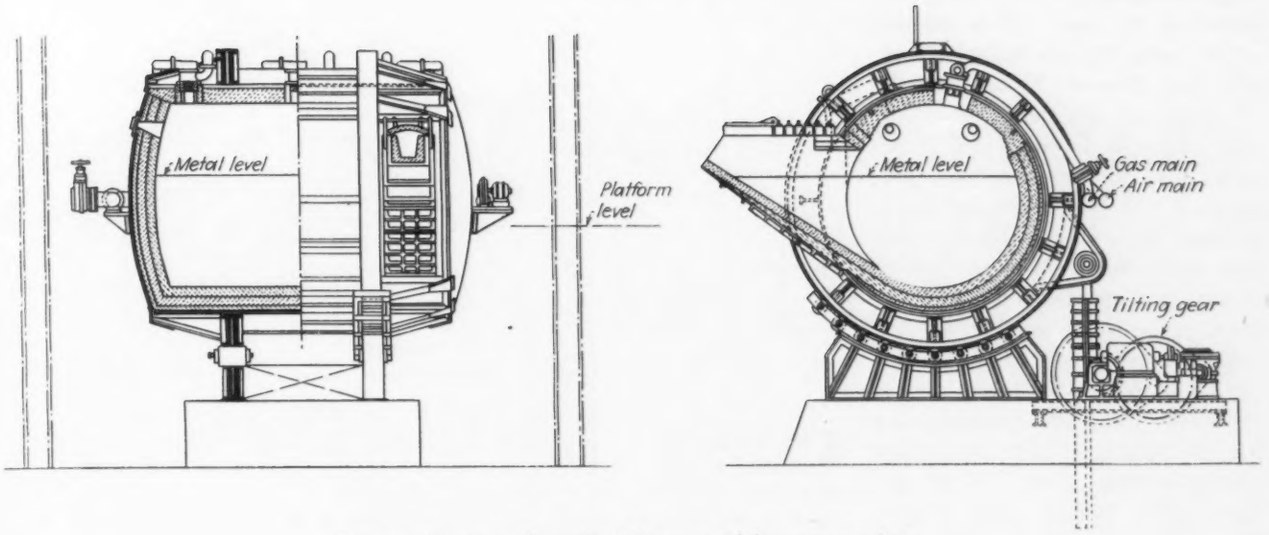


Fig. 6—Sections through 400-ton acid bessemer mixer.

lime and magnesia. The porosity of fire stone is given as 18 per cent with an apparent specific gravity of 2.14. The melting point is 3000 deg. F. and the cold crushing strength from 8000 to 10,000 lb. per sq. in. On heating to 2600 deg. F. a 2 per cent linear expansion occurs. The life of such a lining is about 10,000 tons of steel (400 blows). This corresponds to a refractories cost for the vessel lining of about 10c. per ton.

The basic bessemer converter vessel is usually similar in shape to the acid converter vessel, but in some plants improved results are said to be obtained with converters of oval section. The lining material consists of tarred basic (dolomite calcined at a high temperature) and this may be in the form of blocks or a monolithic ramming (Fig. 8). Where blocks are employed the procedure in preparing the basic is similar to that described in a later section dealing with the bottoms. Large hydraulic presses giving a molding pressure of about 5000 lb. per sq. in. are used. The blocks may be installed immediately after molding or prefired like the basic bessemer bottom. Where a monolithic lining is rammed in a converter, considerable attention must be paid to the tar content which appears to be critical if optimum results are to be obtained, and which should be varied slightly to take care of the different conditions prevailing at different points in the vessel lining.

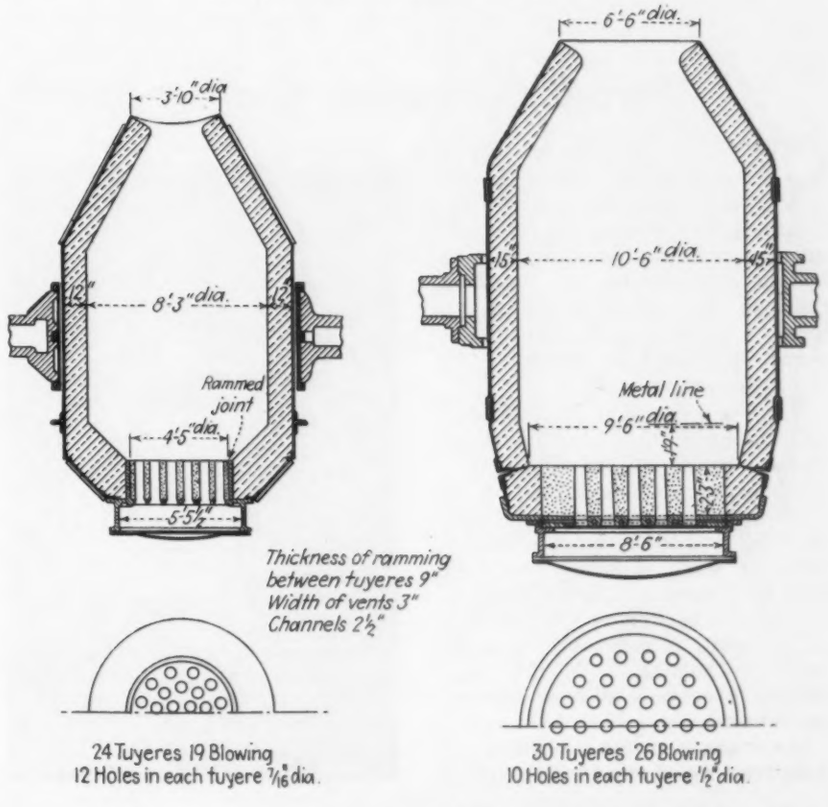
The amount of tar used varies between 5 and 7 per cent. The importance of using the optimum tar content cannot be too highly stressed, as this amount, together with the correct firing technique, will affect to a major extent the useful life of the lining. The tar content and burning-in practice both should be carefully controlled and only varied in terms of each other.

The lining is broken in for service by charging with hot coke, and subsequently lime and iron, and blowing until the iron is converted into a slag of the following approximate composition:

	Per cent
FeO	30.0
Fe_2O_3	20.0
CaO	25.0
MgO	15.0
SiO_2	6.0
Al_2O_3	4.0

At the conclusion of firing the converter, the lining is coated with slag and is in a condition to receive the molten charge.

FIG. 7—Sections through 10 and 25-ton acid bessemer converters, showing construction of bottom and vessel lining.



Little appears to have been published on the causes of destruction of converter linings but it is probable that abrasion by hot particles of metal and slag plays an important part. It is, however, recognized that the iron analysis, particularly the silicon content has a marked effect on the life of a lining. The wear tends to be greatest in a region about one-third of the distance between the bottom and the converter mouth where the lining tends to "bell" out, and also at the nose. Generally speaking, the life of a lining is four times that of the bottom, about 160 to 200 blows. This is only about half of that obtained with an acid converter lining.

Editor's Note: Next week the author concludes this investigation with a discussion of materials and construction of acid and basic bessemer bottoms.

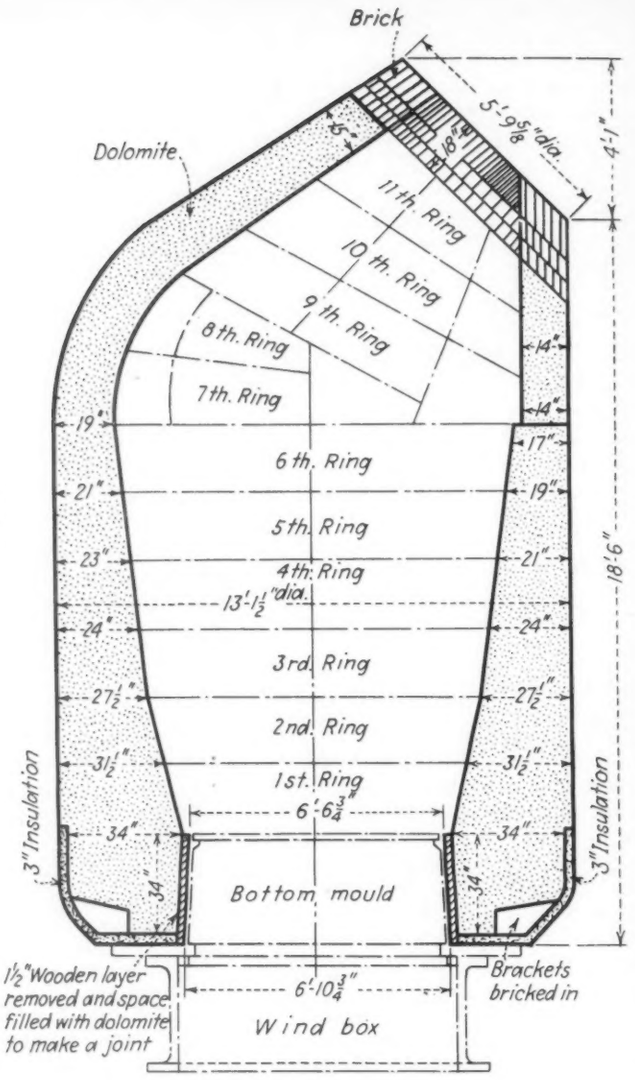


FIG. 8—Section through a 25-ton basic bessemer converter.

Forced Convection Heating Speeds Heat Treating

CERTAIN advantages attributed to a new forced convection type furnace developed by the Lindberg Engineering Co., Chicago, provide the heat-treater with a speedier processing of forgings, castings and other parts which must be normalized, hardened, tempered, nitrided or subjected to other heating operations.

The work range of this furnace, known as the Super Cyclone, is extremely usable as the forced convection heat is obtainable up to 1750 deg. F. and all work going into the furnace is handled in fixtures or work baskets. The high heat limit permits a broad scope of products to be treated and handling of the work is reduced to a minimum by holding it in the same fixture throughout all heat treating operations.

An example of this is cited on the heat treating of gun forgings (Fig. 1) where the forgings were loaded into a fixture, normalized, permitted to air cool in the fixture, returned to the furnace for reheating, oil quenched and again returned to the furnace for the draw,

The advantages of the forced convection heating, which is forced by a high velocity fan, are the elimination of radiation to the work from a source hotter than the desired work temperature and also the elimination of one-sided heating which may cause strain or distortion.

As a result of uniform heating and spaced loading in fixtures, straightening is reduced materially on heat treated parts. In many instances no straightening whatever is required and in most other cases the straightening is so slight that it can be accomplished speedily and with minimum chance of injuring highly hardened products.

Babbitt—Lead-Base for Tin-Base

By A. HOYT LEVY
Vice-President, United American Metals Corp., Brooklyn

THE discussion of babbitt metal in this article is not necessarily technical. It is rather of a general nature to impress upon its users the importance of having more than a surface knowledge of the subject and to designate the rightful place of babbitt metal in the scheme of wartime endeavor.

Many excellent articles on sleeve bearings have appeared in the IRON AGE and other publications, but few articles have been written on the subject of babbitt metal which lines the bearings and upon which the success or failure of a bearing may depend.

Since the Japs slammed down the door to the tin cellar, this country has gone into a dither on the hundreds of things which in daily doings it had taken for granted and to which it had never thought of attaching any importance. Not the least important of the things affected by the lack of tin is babbitt metal. And the pity of it is that most of those who should have known something about the babbitt metal that is so essential in waging war, know as little about it as a newly married bride knows about baking biscuits.

The existing tin situation is not unlike that which was experienced during the World War, differing in the present Global War only in that it is much more acute. But as now, dozens with little or no knowledge of bearings, rushed to the rescue with formulas for tinless babbitt. And as now, most of them were only of a nuisance value, creating much confusion, although a few of them did have the germ of promise but unfortunately were not fully developed for lack of encouragement.

Though the shortage of tin is a grim reality, the babbitt situation is not nearly so serious as users generally believe or have been led to believe. With many babbitt users, high tin-base babbitt had become a fetish. The mere mention of a lead-base babbitt in their particular machine would bring an immediate dismissal of the idea. Yet there are thousands of bearings in machines which had never been lined with any but high tin-base babbitt and which would have functioned as well, and possibly better, with a lead-base babbitt. It is to the credit of the War Production Board that they had become cognizant of this fact, as is evidenced by the regulation which limits the tin content in babbitt metal to a maximum of 12 per cent, except when required by the Army, Navy, Maritime Commission or for implements of war.

Ed. Note: Grueling trials of new lead alloys for bearings are being conducted at the Cooper-Bessemer Corp. plant, one of the country's leading producers of diesel engines, gas engines and air compressors. According to Ralph Boyer, chief engineer, alloys with lead as the base metal have been put into bearings of the corporation's diesel engines and air compressors, and from all indications they are doing very well. However, about a year of testing will be required to prove conclusively that lead is an adequate substitute. The company points out that it has been forced to turn to lead as a base metal in the place of tin, but that preliminary indications are that lead will produce better bearings than have ever been produced before.

Next to the doctor, among professional men, the writer's deepest respect is for the engineer. The writer marvels at his ingenuity and admires the engineer's blue-prints and the ease with which he reads them. But when the engineer discusses babbitt, so close to the product of his skill, the writer wonders at his lack of knowledge which is not easy to condone. Many engineers with whom the writer has come in contact, seem to judge a babbitt only by its Brinell hardness —an uncertain property in babbitt and of subordinate importance even when taken in relation with other factors. Some determine the capability of a babbitt only by the height of its curves in the plots of its tests for compressive and tensile strengths, disregarding the fact that strength in a babbitt is a factor only up to a certain point and that any strength beyond that point is superfluous and is obtained at the sacrifice of some other important factor. There is no more sense in having a babbitt with a compressive and tensile strength beyond the limits of its duty plus the accepted margin of safety, than there is in wearing woolen underwear on a midsummer day because wool is warmer than linen or lisle.

The shelves at the Patent Office in Washington are weighted down with patents of babbitt metal formulas in which most of the claims stress chiefly the great strength of the resulting alloy. With few exceptions, alloys made to the formulas described in the patent papers are too brittle to withstand any kind of shock, or too high in coefficient of friction to run cool under any kind of lubrication.

There is much more to babbitt than high points in Brinell, compression and tensile strength. A babbitt capable of resisting wear

need not necessarily be hard. Indeed, Isaac Babbitt's basic idea was to line a bearing-box with a "soft" metal which would not heat the shaft by friction. He might have tried an alloy of lead with possibly a little tin and antimony added. Such an alloy would have proven satisfactory for the machinery of his day. But Isaac Babbitt was a silversmith and also worked in pewter. So that it was the natural thing for him to make his first test with the material at hand. And curiously, in all the years since his invention of the bearing box, despite the tremendous progress made in machinery of every kind, no alloy for lining a bearing operating under heavy load, great shock or high speed, has since been found to equal Isaac Babbitt's pewter, the formula of which was approximately 89 per cent tin, 7 per cent antimony and 4 per cent copper.

The reason for the success of Babbitt's original formula was due to the fact that the antimony combining with the tin, formed needle-like crystals which intertwined, not unlike tangled shrubbery, forming a cushion to take the shock. The copper, combining with the tin, formed cubical crystals which, enmeshed in the tangle of tin-antimony needles, furnished strength to carry the load. Thus, the result is an ideal combination for a babbitt lining that will carry a heavy load and absorb the shock of forcible impact.

But like the chef's recipe which the cooks try to improve upon, Babbitt's original alloy has been changed up, down and crosswise and with almost every known element added, singly and in multiples. One of the favorite additions to make it stronger, which comes to the fore every so often, is nickel. Yet nickel, although adding useless strength, is detrimental to the alloy for the reason that it breaks up the tin-antimony needles and so destroys one of the basic factors of babbitt. Another babbitt which pops up on such occasions as the present and which has considerable merit, is alloying pure lead with one or more of the alkali earths in very small volume. These alloys are surprisingly tough and strong and have the further advantage of a very low coefficient of friction. But it requires the practice of greater skill and more exacting care when remelting these babbitts for lining the shells, than is given the general run of factory mechanics, which explains why this class of babbitt is not marketed but is used only when the relining is done from the original melt by babbitt bearing specialists.

Of the hundreds of babbitt metal formulas, tin base and lead base, made to the combination of tin, antimony, copper and lead, all of them can well be discarded with the exception of three or four which would serve satisfactorily for every sleeve-bearing requirement in the present world of machinery, from a line-shaft bearing to the main bearings in a diesel marine engine. And even now, the writer ventures to say that 90 per cent of the machinery in this country can get good bearing service with a properly alloyed lead-base babbitt containing no more than 12 per cent of tin as prescribed by the War Production Board.

Cementing High Speed Steel Tips

RECENTLY the Timken Roller Bearing Co. pointed out the economies affected by using Cinch steel cement in the cementing of high speed steel tips to low alloy shanks. This process was described in an article in the April 16 issue of THE IRON AGE entitled "High Speed Steel Tips Cemented to Low Alloy Shanks," and also in the June 25 issue under the title "Cementing High Speed Steel Tips." (Now available in reprint form with other articles under title, "How to Increase Cutting Tool Life," 35c.) Since these articles were published, changes have been made that have either improved the bond or reduced the cost.

From the cost saving angle, it has been found that SAE 1020 steel is entirely satisfactory for shanks, except where high stresses are encountered. Furthermore, a saw and shaper will process approximately 95 per cent of the shanks and inserts. In other words, very little milling machine work need be involved. Rough surfaces and somewhat poor fits between the shank and insert are filled with the cement. This is in contrast to brazing where fairly good surfaces and fits are required. In cases where the high speed steel insert is entirely used up and the shank is long enough, the shank is recut and another insert cemented on.

From the standpoint of proper bond, some trouble was encountered when cementing inserts made from molybdenum types of high speed. The cement did not flow freely at the lower high heat temperatures, resulting in a number of failures from loose bonds, particularly on flat formers requiring large inserts. After some experimenting, a very simple solution was found: First, substitute a thin water-boric acid solution for the copper sulphate as a paint binder for the loose cement. Second, add approximately 20 per cent by volume of boric acid powder to the cement, making sure that the boric acid is well mixed with the cement before applying to the tool.

W. R. Chapin, maker of Cinch steel cement, also has a new development for the improvement of the cementing process. It has been found that too much air has been the cause of most cement failures and he suggests removing the tool from the furnace when it reaches about 500 or 600 deg. F., just hot enough to melt boric acid and powdered borax. A powder called 90-and-10, consisting of 9 oz. of commercial powdered boric acid and 1 oz. of powdered commercial borax, is sprinkled on the tool which is temporarily removed from the furnace at the temperature mentioned above. The boric acid and borax form a seal which excludes the air and makes a perfect bond. In applying the 90-and-10 powder mixture, it is best to use a salt shaker or some other simple device in order to completely cover all joints. The bond is completed at the high heat temperature suitable for heat treating the particular type of high speed steel being tipped.

Bonding Low-Tin Bearings to Iron and Steel

THROUGH necessity the tin content of babbitt metal has been ordered reduced sharply —a typical analysis permitted under current conditions being 1 per cent tin, 1 per cent arsenic, 15 per cent antimony and the remainder lead. This contrasts with bearing metal alloys commonly used and having a tin content ranging from 10 per cent to as high as 70 per cent. The restrictions referred to have been put into effect in the United States and also in Great Britain, and probably any manufacturing carried on by any of the other Allied nations is faced with the same restrictions or prospects.

Besides reduction in tin content, certain other restrictions have been imposed in some instances. For example, the British Ministry of Supply has recommended a reduction in thickness of bearing metal to as low as 0.010 in. in unflanged, thin wall bearings and has specified that bearing liners should be designed to a thickness of 0.030 in. for bearings below 2½ in. bore, 0.040 in. for bearings 2¼ in. to 4 in. bore, and 0.060 in. for bearings between 4 in. and 6 in. in diameter. In this country the thin walled bearing has been "the coming thing" in many applications and had arrived in automotive applications sometime prior to the war.

In fact, steel-backed babbitt bearings used in the automotive industry are in common usage with a lining thickness of only approximately 0.006 in.

Problems have arisen as a result of these changes in the technology of bearing design and bearing manufacture, however. With the thin backed bearings it is essential that a firm bond between the bearing and the backing material be obtained. With steel backed bearings this is comparatively easy because the babbitt metal can be united to the steel after the steel is "tinned." This ease of tinning does not prevail, however, where cast iron liners or sleeves are used with babbitt metal.

Another difficulty frequently encountered is that anchor holes or anchor grooves are not quite so practical with the thin babbitt bearing. It has been common practice for many years to provide anchor holes or anchor grooves into which the babbitt is allowed to flow when cast iron backing is used. Thus a mechanical anchor, plus what little bond can be obtained between the babbitt metal and cast iron, is used to retain the liner in the backing. However, lack of uniformity of thickness of the bearing metal where anchor holes or grooves are used is a disadvantage, particularly with the thin babbitt bearing, because of lack of uniformity of stresses and wear. This has been one of the principal motives behind

FIG. 1—This microphotograph was taken at a section of the junction of the cast iron backing and the babbitt metal in the bearing and shows very clearly the inter-facial alloy bond obtained between the two. The specimen was unetched and the magnification is 500 diameters.

A B C

FIG. 2—Three diesel connecting rod bearing backs of Meehanite cast iron. (A) is the iron backing; at (B) is the backing after being dipped in the Kolene cleaner, and (C) is the backing after dipping in Flo-Met'l and prior to pouring the babbitt into the backing. I.D. = 9½ in., weight = 12 lb. each.

the babbitt development of the "tinned," steel-backed babbitt bearing. (See paper on "Automotive Bearings," presented by John Anthony, Cleveland Graphite Bronze Bushing Co., before the Society of Automotive Engineers, Detroit, March 31, 1941.)

Thus a vital problem has arisen in the bonding of the babbitt to the backing. The problem is two-fold: First, it involves the bonding of a very low-tin content babbitt or bearing metal to steel; second, it involves the bonding of a bearing metal with cast iron.

Either of these problems is severe, but obviously the bonds with cast iron have been most difficult to obtain.

A solution has been advanced by the Kolene Corp., Detroit, and has been accepted by a number of concerns and is being investigated currently by others. Within the WPB the problem has been encountered and results of the Kolene process observed so that any of the firms newly encountering the problem have a possible solution indicated for them.

The solution is equally applicable with steel backed bearings and with cast iron. But the outstanding success with cast iron suggests that this processing be discussed, with the understanding that the discussion also applies to steel backed bearings.

In the case of cast iron, the solution makes it possible to clean the cast iron so that it can be, in effect, "tinned." The cleaning process is the first step and then the application of an alloy coating called Flo-Met'l follows. The Flo-Met'l alloy is a solid solution of a tin-antimony compound in lead which is capable of dissolving iron up to seven per cent. This alloy, which is only 5 per cent tin, apparently forms an interfacial bond or alloy (see microphotograph) with iron or steel that will not peel or chip. By proper fluxing it is then possible to pour babbitt metal and secure uniform bond between the coating and babbitt, even though the babbitt be of very low tin content.

When pouring babbitt into these bearings after coating, it is desirable to pour while the bearing is still hot; i.e., above the melting temperature of the Flo-Met'l, which is 480 deg. F.

Tests of bearings prepared in

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FIG. 3—Three diesel main bearing backings of Meehanite cast iron, similar to A, B, and C above. These are 9½ in. i.d. and weigh 81½ lb. each. The photograph (B) shows the means used to handle the casting for dipping in the cleaner.

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this manner—without anchor holes—show that the shear strength is greater than that obtained when the babbitt is poured into anchor holes on an uncoated bearing (untinned). For example, tests made by the Dodge Mfg. Co., a licensee of Kolene and one of the largest producers of power transmission bearings, showed that bearings prepared in this manner had as high as 16,000 lb. per sq. in. shear strength (average is about 12,000 lb. per sq. in.), whereas maximum shear strength for similar bearings using anchor holes to hold the babbitt metal in place averages about 800 lb. per sq. in.

An interesting feature of this process is that it makes it possible to accomplish the hitherto difficult or impossible task of "tinning" cast iron.

Application of this material to steel backed bearings makes possible a great saving in tin since the tinning operation normally employs a high-tin content material or pure tin while Flo-Met'l has only 5 per cent tin according to the manufacturer.

The procedure followed is to clean the cast iron or steel thoroughly by the Kolene cleaning process (see "Metal Cleaning," THE IRON AGE, July 24, 1941). This cleaning process consists of first converting the surface impurities of iron or steel to an easily soluble form by means of a hot catalyzed molten salt bath. This hot catalyzed molten salt is used to burn the graphite from the surface of cast iron. After rinsing, the bearing back is then immersed in a reducing salt bath to reduce the oxide placed on the surface by the first operation. After another rinse the bearing back is immersed, usually for only a few seconds, in cold hydrochloric acid. It is then dipped through a head of flux into the Flo-Met'l, the high-lead, low-tin content alloy which, having the ability to dissolve iron or steel, actually forms an interfacial alloy of the Flo-Met'l and the iron or steel uniformly over the surface of the bearing backing material.

While still hot, above the melting point of Flo-Met'l, the bearing backing is then fluxed and the babbitt metal poured in the usual manner. The Flo-Met'l coating being a high-lead content metal, easily bonds with the high-lead content babbitt metal, resulting in a uniform, firm bonded bearing. With this firm uniform bond, the surface spots and other features present when anchor holes are used are eliminated.

Mustangs in Service with the RAF

THE British, who have done a considerable amount of air fighting and dying, have for years been inclined to be very critical of American aircraft. That the attitude is not chronic is best exemplified by the fact that they have recently been extremely lauditory of the American fighter, the North American Mustang.

According to *Aeroplane*, the Mustang is now in service with the Royal Air Force. It joins the Tomahawk as the successor to the Lysander in Army cooperation squadrons. It has already taken part in fighter sweeps with Fighter Command over Northern France and has gained the approval of all and sundry, from the A.O.C.-in-C., Army Cooperation Command, down to the humblest flight mechanic. Time must confirm these early encomiums.

Its especial virtue lies in its speed near the ground, but it has a whole catalog of other good points. Its motor is not supercharged for high flying, but that particular quality is not essential in its present job.

Pilots who fly the Mustang praise it so lavishly that they exhaust their superlatives before they have finished their eulogies. A demonstration of its flying qualities and an inspection of its cockpit suggest nothing to cast doubt on the judgment of those who might perhaps be suspected of looking with special favor on something new.

In outward form the Mustang is not unlike the Messerschmitt Me 109e, but has a more graceful body. It wears the fighter's white spinner and white band near the tail, has a thunderous roar, and sometimes whistles like a Spitfire. Its climb is phenomenal. It seems to rocket from ground level to 5000 ft. with its nose only a few degrees below the vertical—after a fast dive. It can be rolled as it climbs—not once or twice, but five times in rapid succession. It spins with the ease and docility of an elementary trainer. It has been looped and put through every other normal maneuver but has revealed no vice. In this it resembles the Spitfire. In control, the Mustang is excellent. The ailerons are light but effective, and the elevators are positive at all speeds. This is equally true in the unusually steep glide with "dead" motor.

It is heavy and robust, and will take a hard knock without crumpling up. Six to eight strong men are needed to lift its tail. Its long take-off run is no disadvantage in these days of prepared runways. With the motor rumbling in the approved modern fashion the landing is entirely devoid of excitement or danger.

The Mustang's Allison motor is rated by those who have flown other Allisons to be the best in the series now in service. It is reliable and smooth, and gives the ground crews no headaches.

In the layout of the cockpit, the designer appears to have remembered the pilot. The view is good and the instruments are assembled in neat, orderly rows on a rectangular panel. As many "gadgets" as possible have been so placed that the pilot may fly with his right hand and feet while attending to other duties with his left hand. The control column is a simple stick, rather large, and carries nothing additional but the firing trigger—an unfamiliar variation in that it is in the form of a trigger and not of a button. A selector device allows the pilot to fire the wing guns, the fuselage guns, or all guns together. The hydraulic brake pedals are incorporated in the rudder pedals.

The undercarriage wheels retract inwards, like the Hurricane's, and the period of retraction is about 5 sec. The retracting and swiveling tailwheel can be locked for take-off. Large plain flaps are fitted, but the Mustang can be landed quite safely without them. They make little difference to the trim.

Other details are: Wing span, 37 ft. 3 in.; wing area, 236 sq. ft.; length, 31 ft. 3 in.; height, 8 ft. 8 in.; undercarriage track, 11 ft. 10 in.; motor, 1150 h.p. Allison F.3.R, V-type liquid cooled with single stage supercharger; Hamilton three-blade propeller, constant speed; armament, machine-gun in wings and fuselage.

Automatic Time-Temperature Control in

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THE development of an automatic time-temperature controller by the Automatic Temperature Control Co., Inc., Philadelphia, emphasizes the growing importance of a recent trend towards strict control of both heating and cooling stages during heat treatment. Government specifications are demanding increasing use of such control as is typified in the Navy department specification *S14* which reads in part: "For carbon molybdenum steel piping after a mean temperature of 1100 to 1175 deg. F. is reached, the piping shall be held within that range for one hour and cooled to 500 deg. F. at a rate of cooling not over 125 deg. F. per hr." From this specification it can be plainly seen that accurate control is necessary.

A typical time-temperature program of a much more demanding nature than called for by the above specification is shown in the graph, Fig. 1. Such a program might plausibly be specified for various batch charges to the heat treating furnace. Every stage in the program from the initial raising to temperature to a variety of heating, soaking and cooling periods, all of which are predetermined and automatically controlled to conclusion, can be accurately managed to conform with the most rigid and demanding specifications.

A schematic wiring diagram of the ATC time-temperature controller is shown in Fig. 2 as a means of clarifying the mechanics of the control instruments. The important essentials of the controlling equipment are the time-temperature controller, a suitable thermocouple and a recording control pyrometer.

To explain the functions of these instruments in controlling temperature in relation to time, a typical example of a controlled heating program is cited. The sustained soaking periods consist of a mere maintenance of temperature, and cooling stages are accomplished by the reverse of the procedure for heating. The same accurate control is maintained in all stages in the same manner.

Suppose it is desired to heat a furnace to 1200 deg. F. at the rate of 100 deg. per hr. In this instance the dial on the slidewire is graduated from 0 to 12 hr. and the rider arm on the slidewire is rotated from one end to the other in a period of 12 hr. by its synchronous motor. The pyrometer's control setting is placed manually at 1200 deg. F. and the slidewire's rider arm is manually set to 12 hr. by adjusting the rate adjustment rheostat. The current through the slidewire is increased until the rate meter reads 100 deg. F. per hr. At this point the temperature control system is ready to start the program.

OPERATION: At the start, the e.m.f. generated by the thermocouple is zero; the e.m.f. generated by the time-temperature controller corresponds to a temperature of 1200 deg. F. These two e.m.f.'s are connected in series, and are impressed across the pyrometer's thermocouple terminals. This causes the temperature indicating pointer of the pyrometer to run immediately to the 1200 deg. point on the dial or chart. Since the control setting is also at 1200 deg. F. equilibrium exists in the system. At this point the motor is started, and the slidewire rider arm begins to rotate from *M* to *O* (see Fig. 2) to lower the millivoltage output of the time-temperature controller. This motion is uniformly actuated by the synchronous motor. Since the millivoltage set up by the time-temperature controller is now less than required for 1200 deg. the pyrometer's temperature indicating pointer drops below the 1200 deg. mark and causes the pyrometer's "1" contact to "make," opening the fuel supply to the furnace. This initial input of fuel to the furnace raises the furnace temperature and causes the thermocouple to generate a small millivoltage. This millivoltage added in series with the reduced millivoltage of the time-temperature controller is equivalent to 1200 deg. and balance is again restored to the system by the pyrometer's temperature indicating pointer returning to the control setting at 1200 deg.

In general then, when the e.m.f. generated by the time-temperature controller decreases a few hundredths of a millivolt, the coincident effect on the thermocouple is to increase its e.m.f. by an equal millivoltage and thus restore balance to the system. If, however, the initial input of fuel to the furnace caused an increase in temperature sufficient to raise the thermocouple e.m.f. above a few hundredths of a millivolt, this millivoltage would cause the pyrometer's temperature indicating pointer to rise above 1200 deg. F. and thereby make "h" contact—cutting off fuel supply. In this way, the input to the furnace is so regulated that the thermocouple e.m.f. plus the time-temperature controller e.m.f. always equals the level required for 1200 deg. F.

As the synchronous motor drives the slidewire arm down-scale, from *M* to *P*, thereby decreasing the e.m.f. generated by the time-temperature controller, the pyrometer is so affected as to raise the furnace temperature a sufficient amount to increase the thermocouple e.m.f. to a point where, when added to the time-temperature controller e.m.f., the aggregate remains at the 1200 deg. level. Because the increase in thermocouple e.m.f. at all times balances the synchronous decrease in the time-temperature controller e.m.f., the furnace temperature increases as a linear function of time.

COOLING: After a furnace has been brought up to heat, it may be cooled at a controlled rate and for a given length of time by merely reversing the direction of motion of the slidewire's rider arm. This causes an increasing millivoltage to be inserted in the thermocouple circuit. Adding this new millivoltage to the millivoltage of the thermocouple causes an e.m.f. to be im-

Heat Treating

pressed across the pyrometer's thermocouple terminals of such a magnitude as to cause the temperature indicating pointer to rise above the control setting. This causes the pyrometer to make its "h" contact, resulting in a decrease of furnace input and in cooling. If this cooling takes place more rapidly than called for by the settings of the time-temperature controller, the pyrometer makes its "l" contact in order to raise the heat slightly and to remain in step with the rate of drop desired.

Cooling Controlled

As the e.m.f. generated by the time-temperature controller is raised as a linear function of time, it causes the pyrometer to reduce the input to the furnace at the desired rate until such time as the natural cooling rate of the furnace is slower than that of the time-temperature controller's rate of cooling. This cooling operation continues until the pyrometer has been brought to room temperature or until the cooling rotation of the slidewire's rider arm has been stopped, after a definite length of time. At the end of a cooling cycle, the pyrometer maintains the furnace temperature at the final point reached, similar to its action at the end of a heating cycle.

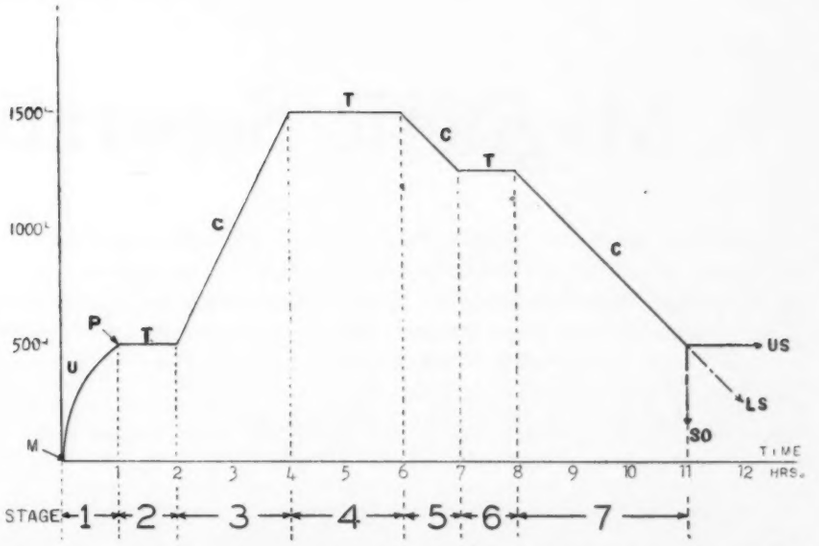


FIG. 1—A typical time-temperature program graph. Stage 1—Furnace heat-up is manually started at *M* and temperature rises at an uncontrolled rate *U* to 500 deg. F. Stage 2—At this point *P*, the pyrometer maintains the temperature of 500 deg. F. throughout the soaking time *T* of 1 hr. Stage 3—A controlled heating rate *C* of 500 deg. F. per hr. is governed by the time-temperature controller for 2 hr. or until temperature has reached 1500 deg. F. Stage 4—This is another soaking time *T* with temperature maintained at 1500 deg. F. for 2 hr. Stage 5—A controlled cooling rate *C* of 250 deg. per hr. is in effect for 1 hr. or until the temperature has reached 1250 deg. F. Stage 6—This is a soaking time *T* with temperature maintained at 1250 deg. F. for 1 hr. Stage 7—A controlled cooling rate *C* from 1250 to 500 deg. F. decreases the temperature at the rate of 250 deg. F. for 3 hr. At the end of this time the furnace charge is ready to be removed and temperature control is governed by the pyrometer for an unlimited soak *US*.

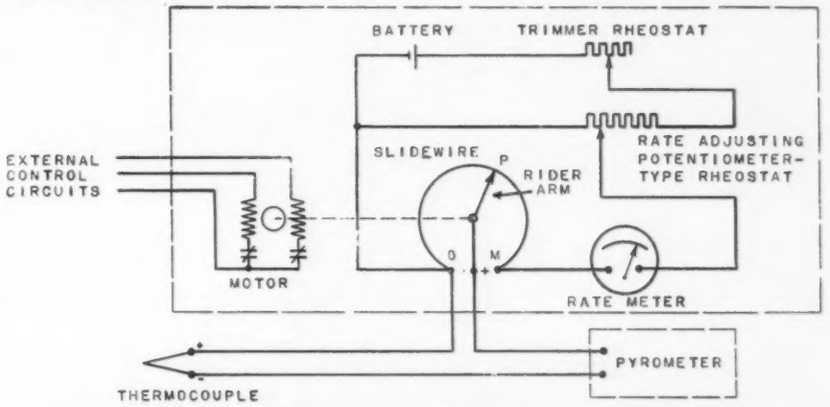
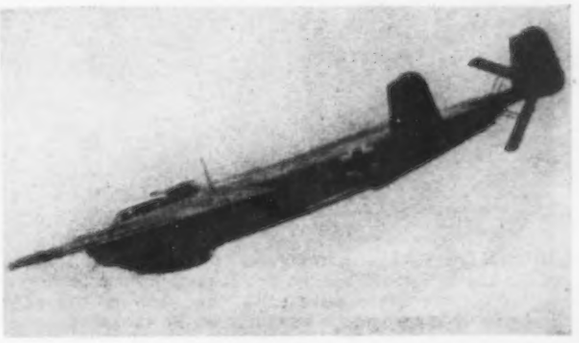


FIG. 2—Schematic wiring diagram of the ATC time-temperature control system.

Detail of the Dangling Dornier Do 217e2.

THIS photograph from the German paper *Der Adler* shows in detail for the first time the form and method of operation of the "umbrella-type" dive brakes on the tail of the Dornier Do 217e2. According to *Aeroplane*, the principle is the same as that of the tail parachute, which has been used for some years as a safety device in spinning trials.

Apparently the four portions of the brake open from the front and slide forward, the top and bottom sections being curved at the sides to maintain the contour of the fuselage. The photograph shown here is from a motion picture film of the brake opening. Presumably the balance is such that the brakes can be shut again after a pull out, but a jettisoning arrangement is incorporated so that they can be abandoned if necessary. The angle of dive even with the brakes fully extended cannot exceed about 60 deg. for normal bombing with internal stowage.



Magnetic Separation of Non-

NON-FERROUS scrap reclamation systems have been developed over a period of 40 years. The foundation of most of them is magnetic separation which, in addition to other recent improvements, now in many cases permits separation of mechanically entangled scrap, always a difficult problem. Removal of fine particles of iron—fuzz, filings, etc., has also recently been made more effective.

There are three main divisions of non-ferrous scrap, for purposes of a discussion of magnetic separation: First, "junkyard" scrap, consisting of old articles and pieces of non-ferrous metal contaminated to a small degree with iron; second, non-ferrous borings and turnings which are contaminated by relatively small amounts of iron, and third, intimately associated or entangled ferrous and non-ferrous scrap, such as results when babbitted pillow blocks are bored or grooved for lubrication channels.

Junkyard scrap is most commonly separated by a magnetic pulley which is installed as head pulley in a belt conveyor system, or by a pulley type separator which is a self-contained unit incorporating a magnetic pulley, endless belt, idler pulley, frame and motor drive. This type of equipment is applicable to the requirements of metal refining plants as well as junkyards. Pulley type separators can be made portable.

The principle of operation of a magnetic pulley is illustrated in Fig. 1. Iron is attracted by the pulley and held fast against the belt until it is carried underneath and past the influence of the magnet zone. Non-magnetic material passes over the pulley in a normal trajectory.

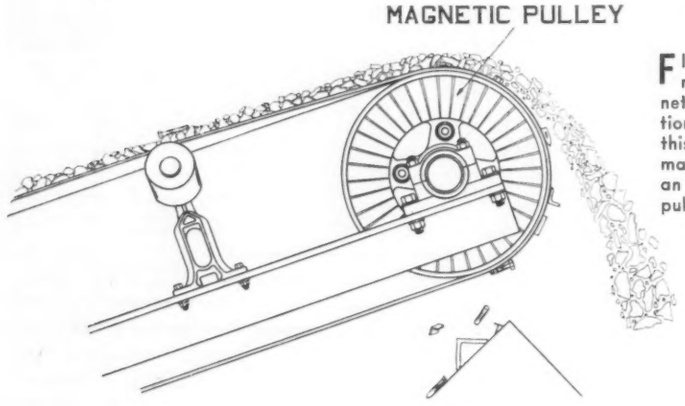


FIG. 1—Most common type of magnetic pulley installation. Equipment of this type can be made by replacing an ordinary head pulley with a magnetic pulley.

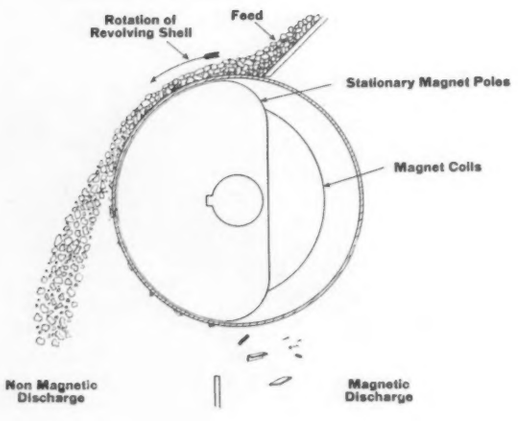


FIG. 2 — Drum type separator, consisting of a magnetic coil around which the drum revolves. Magnetic lines of force extend only half way around the drum.

Magnetic pulleys are commonly built in sizes ranging from 12-in. diameter by 13½-in. face width, to 48-in. diameter by 63-in. face width. Approximate recommended pulley speeds range from 50 r.p.m. for the smaller sizes down to 20 r.p.m. for the larger, with capacities ranging from approximately 400 cu. ft. of scrap per hr. to over 15,000 cu. ft. per hr.

Pulley type separators are built standard, with pulleys ranging from 12 in. by 13½ in. to 42 in. by 62 in. These are mounted with the belt horizontal or with the belt at approximately 17 deg. Horizontal pulley type separators are mounted above the floor under hoppers, at the ends of belt conveyors and chutes or in some similar manner. Inclined pulley type separators are mounted on the floor and can be stationary or portable.

Magnetic pulleys are built in both solid and air-cooled models. The air-cooled model has an advantageous effect on the magnetic strength of the unit because heat tends to lessen the magnetic pull. This design is also credited with lengthening pulley life by reducing the danger of coils burning out. Many solid pulleys, however, have been in constant operation for 35 years and more without repair. The effective life of a well built pulley is indefinite.

Turnings and Borings

Turnings and borings require longer exposure to a magnetic field than junkyard scrap because the iron is somewhat entangled with non-ferrous material and is also of such small mass as to be less susceptible to magnetic influence than larger pieces.

Three types of magnetic units are ordinarily used for this work: Drum type separators, dual-pulley type separators, and revolving disk separators. The first two are most commonly employed today.

Ferrous Scrap

By R. L. MANEGOLD
Dings Magnetic Separator Co., Milwaukee

. . . Borings and turnings, "junkyard" or metal refining-plant scrap, and badly entangled scrap present varying problems in separation. In this timely article, the author describes equipment adapted to segregation of non-ferrous materials in these three types of scrap. Other articles on the reclamation and conservation of metals appeared in THE IRON AGE, Jan. 29, March 26, April 2 and April 16, 1942, issues.

A drum type separator consists of a magnetic coil around which a power driven drum or shell revolves. Magnetic lines of force emanate radially, to extend only half way around the drum (Fig. 2). Thus as magnetic material passes down over the drum it is attracted and held fast for one-half revolution, at the end of which it passes beyond the sphere of magnetic influence. Magnetic drums, when employed for scrap separation, are generally built as complete separators with the drum enclosed in a housing and equipped with a drive unit. Scrap is fed into the top of the unit. Capacities compare favorably with pulleys of similar size.

Dual pulley type separators are similar to the inclined pulley type in that they have an inclined belt with a magnetic head pulley. In addition, however, a second pulley type separator is installed above the inclined belt, about half way up (Fig. 3). This provides two separation points to insure maximum separation. The first pulley utilizes the selective "picking" principle, lifting iron out of the scrap and discharging it to a chute. The scrap, after passing under the first pulley, proceeds over the second pulley where a second separation is accomplished in the same manner as previously shown in Fig. 1.

The revolving disk separator (Fig. 4) is one of the earliest employed for scrap separation, having first been introduced in 1899. Many of these units are still in operation after more than 30 years' service. Hundreds date back to 1917 when, during World War I, scrap separation received great impetus.

The principle of operation is quite simple. Metal feeds onto an inclined agitating tray and under a revolving disk with a diameter greater than the width of the tray. A powerful primary magnet induces magnetism in a series of secondary magnets set in the periphery of the disk. These induced magnets rotate out of the magnetic field and lose their magnetism at the point where they overhang the table. Thus they are able to pick iron off

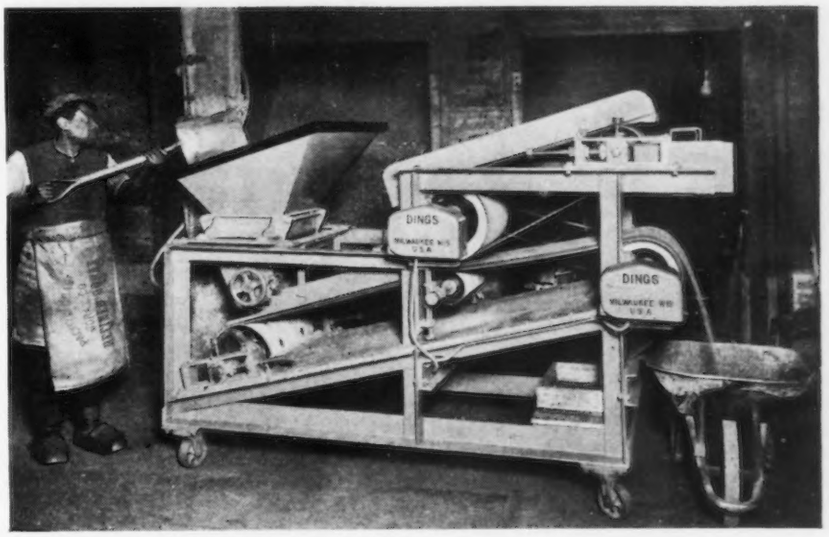
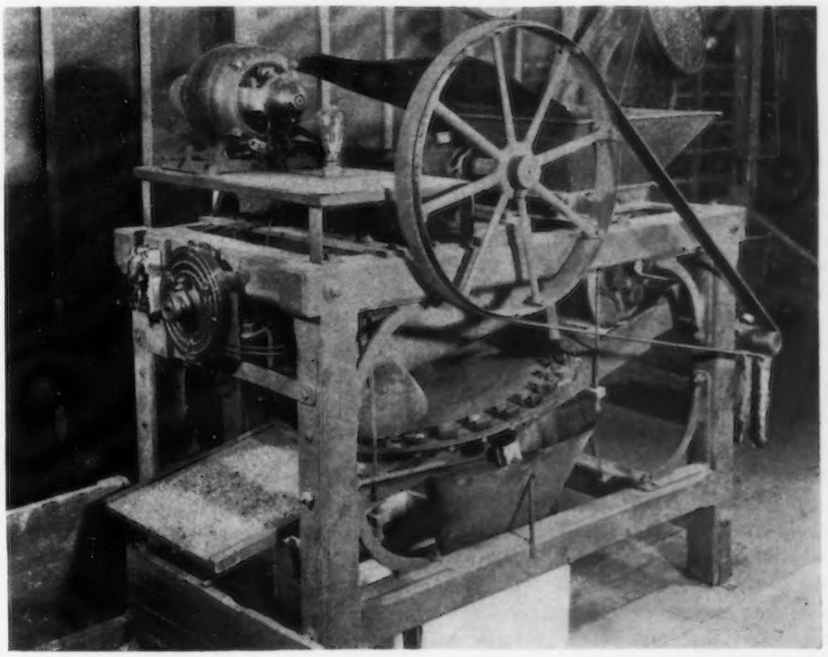


FIG. 3—Dual pulley separator. In addition to the type of pulley shown in Fig. 1, another pulley separator is installed above the inclined belt.

FIG. 4—In the revolving disk separator, metal feeds onto an inclined agitating tray and under a revolving disk with magnetic periphery.



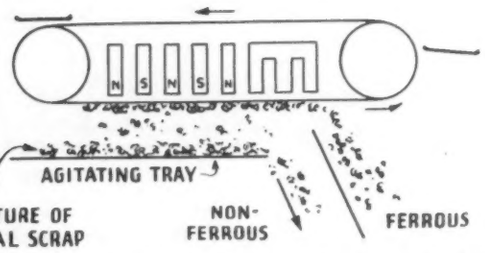


FIG. 5—Scrap jumps from one to another of these alternating-polarity magnets, causing a disentangling, jolting action.

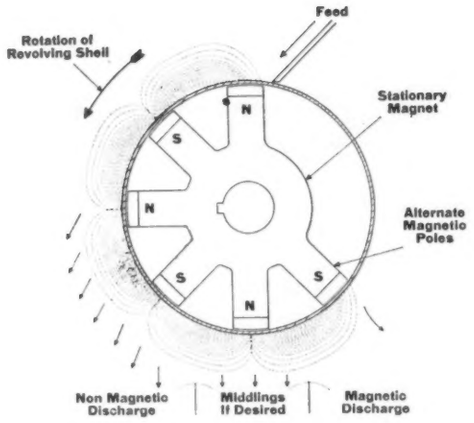


FIG. 6 (right)—This magnetic drum is essentially like that shown in Fig. 2, but the magnet, instead of being stationary, revolves opposite to the drum's rotation, and consists of poles of alternate polarity.

the table and discharge it to the side.

Badly Entangled Scrap

In order to separate intimately entangled scrap, removing all the iron without pulling out a considerable amount of non-ferrous material, it is necessary to introduce agitation. The most recent separator for this job is a machine which employs not only an agitating tray but an agitating magnet as well. (Fig. 5.)

Mounted between the belt pulleys is a series of powerful electromagnets having alternate polarities. Scrap jumps from pole to pole, causing a jolting action which completes the disentanglement and allows any non-ferrous material to fall back on the belt.

This separator was especially designed for such intimately entangled scrap as babbitt and cadmium borings from cast iron, steel turnings from brass borings, etc.

Another unit suitable to separating mechanically entangled scrap is the agitating drum (Fig. 6). The machine is essentially a magnetic drum, but contrasted with the ordinary magnetic drum, where the magnet inside of the shell is stationary and extends only around the front half of the shell, the magnet on the agitating drum revolves counter to the rotation of the shell. Further, the magnet consists of poles of alternate polarity so that the material is violently agitated by the rapid movement of the agitating poles. A special corrugated induced roll is sometimes installed in the rear of the magnetic drum to remove the magnetic material from the drum surface. Material is distributed by means of feeding rolls across the face of the drum. The material is agitated at the rate of 500 to 600 times per min. The magnetic material is carried around to the take-off roll where it is automatically discharged.

Typical materials separated by this type of machine include dross, consisting of solder and metal filings from automobile bodies; also the concentration of sponge iron, and other similar materials.

Silicon Held a Desirable Alloy

ACCEPTANCE of the use of silicon as an alloying element for structural steels has suffered a long delay mostly due to pre-conceived objections, according to English observations. As far back as 1925, E. Bosshardt satisfactorily described a practical process for the manufacture of high Si steels and certain of these were adopted by German industry. Following this adoption, adverse observations were made on welded bridges built of St 52, the German designation of high silicon structural steels. This later led to the abandonment of the grade in Germany.

During recent years renewed attention and favor have been shown silicon steels with the result that many of the old "bogey" objections are being eliminated. The objections were mainly that welding qualities were questionable and that the steel was said to have a pronounced tendency towards the development of blow-holes and surface defects. In addition, the mechanical properties of high silicon steel were said to vary to some extent and the degree of reduction in rolling and corrosion resistance was definitely on the low side. The adverse opinions appear to be mainly the result of C. Wallman (1928) who was investigating the difference between silicon alloyed and non-silicon steels.

The results of recent English investigations indicate that high silicon steels containing up to 1.2 per cent Si with a corresponding content of Mn show no more tendency toward blow-holes than those with 0.4 to 0.5 per cent. Blow-holes in ingots are generally caused by the method of pouring and, in certain castings, to the incorrect dimensioning of runners and risers.

Suitable experiments have also shown that the mechanical properties found with different reductions could not be ascribed to the Si content. The experiments which sought to bring out the effects of Si and Mn in steels, as well as C, Cu and P, on tensile strength, yield point and elongation in the rolled condition, showed that higher Si steels gave better results than low Si steels. As the Si was raised both the tensile strength and yield point were improved with only slight effect on the ultimate strength. Also even when the C is reduced to 0.12 to 0.14 per cent the specified minimum yield is unaltered. In fact, the results indicate that even better mechanical values than specified can be obtained with high silicon steels.

Copper, even in small amounts, has a very beneficial effect—about the same as silicon—on tensile strength, yield point and elongation.

Women on Production at Monarch

By WENDELL E. WHIPP
President, Monarch Machine Tool Co., Sydney, Ohio

. . . Machine tool builders in general have been slow to employ women in the shop, but are now getting started. In a paper presented before the 41st annual convention of the National Machine Tool Builders' Association in October, a leading lathe builder describes the steps taken to induct women into the working force and the success attained with them on the job.

WE in the machine tool industry in normal times have used very few women employees on machine production in our plants. In most of our plants the work has been considered as being more suitable to the physiques of men than of women, and with a plentiful supply of men available we have until only recently given little or no thought to employing women operators in our plants.

The present scarcity of men has brought many of us face to face with the necessity of employing women in our factories just as it has previously done in Britain and Canada during this war. Many of us will remember the part women employees played in war production in America during the first World War, when the manpower shortage did not begin to reach the acute stage it has already reached now. In all countries women are now taking over more of the work ordinarily done by men.

Kept Putting It Off

At Monarch we put off the actual employing of women just as long as we could. We didn't bring ourselves to do it until there were virtually no more employable men available. But for many months we thought about it and gathered as much information as we could so that as the time came nearer the bringing of women in our plant did not seem quite the revolutionary step we had always considered it to be.

We are all familiar with the very large percentage of women successfully performing all classes of machine and assembly operations in the gun, ammunition, aircraft and machine tool plants in Britain and later in Canada as well. Today, especially in the great Western aircraft plants, and in most subcontractors' plants making parts for aircraft, women constitute at least one-fourth of the working force; and we learn that in many of these plants, future personnel plans call for the employment of more women than men. In many of our aircraft plants women have been long since working alongside of men without any distinction whatever as to occupation or as to rate of pay. So, in employing women in the machine tool industry, I do not feel that we are venturing on an uncharted course.

Now let me tell you frankly about our experience in our own plant. Like many of you, we had been thinking for a long time about the possibility of employing women, but we had not actually been doing anything about it. On March 1, this year, we went to three-shift, seven-day operations and with that step we realized that we had reached the practical limit of available manpower in our area. We felt that sooner or later we would have to employ women. But I doubt whether we would have done anything about it as soon as we did, had there been plenty of qualified men available.

Among those women making application for employment was one in particular who showed unusual promise. She was a mature woman, with a background embracing considerable business and legal experience; and it occurred to us that we might well take her on, and use her as, you might say, a laboratory experiment with the idea that if she proved out, she could then act in the capacity of "Supervisor of Women", or "Dean of Women", or whatever you might name the position, in case we later employed a large number of women in our plant.

Early in May, we employed this woman, along with two others, and put all three in the production control department. During June and July, we began to employ more women in production control and in stock checking. The men replaced by women were put on production jobs elsewhere in the factory, to replace men entering the armed services and to fill other shortages.

In the meantime this particular woman whom we thought eventually might be the supervisor of women in our shop literally tried out one job after another, throughout our plant. She went from department to department, trying out the jobs on a wide variety of ma-

FIG. 1—A spirit of camaraderie develops from the mingling of men and women in the plant, but the girls take their jobs seriously and keep their eyes on their work.

chines. The purpose was, frankly, to find out whether a woman could perform these operations. She was successful in performing almost all of them. As a result of her personal experimentation on these different operations, we were convinced that in our plant women could successfully undertake almost any of the jobs which had been performed by men.

This brought us up to Aug. 1. From that date on women have been added to our factory force as rapidly as they could possibly be absorbed. As of today, out of a total factory force of 2600—319 are women. On our No. 1 shift, which is the day shift, we have 106 women in the machine division. On our No. 2 shift, from 4 p.m. to midnight, there are 106. On our No. 3 shift, from midnight to 8 a.m. we have 107 women. These women are about equally divided between machine operation and assembly. Generally speaking, the women in the older age brackets are assigned to the assembly division, and the younger women are used in the machine division because of their capacity to learn the operations rapidly and their dexterity in handling machines.

I want to emphasize the fact that on all three shifts in our plant, women are used to operate all types of machines with the exception of planers, heavy turret chucking lathes, and other heavy work. Women have proved themselves well able to handle all types of machining operations, and our only differentiation between men and women thus far has been entirely on the basis of degree of physical effort. If in the future our supply of available manpower should be even still more seriously curtailed, we would not hesitate for a moment to assign women to the operation of the heavier classes of machines. Of course, if we did so, we would have to provide them with adequate work lifting facilities, so as to reduce the amount of physical effort required in their operation.

Women Thoroughly Capable

As new employees, women have shown themselves just as capable of learning how to operate machines as have the new men. In fact, with respect to some types of operations, they have shown themselves superior to men. Let me give you a few illustrations:

We have found that women do particularly well in work requiring consistent care and alertness—in jobs where it is necessary to work to close tolerances, involving the use of gages, micrometers, and other checking equipment, but calling for little physical exertion.

We have found, too, that women excel in work requiring manual dexterity and speed in repetitive movements. This is especially true in work which permits the operator to set her own tempo, and where she can work in sitting position. At the same time we are not sure that whether a woman sits down or stands up at the job makes any great difference. We have found that most of the women in our plant prefer to stand up at a job at which they might just as well be able to sit down on a stool.

I think these women realize pretty well that in working in our plant they are helping to win the war. They are finding that a woman can help in this war just as well as a man, and they are determined to

FIG. 2—Women do particularly well in work involving the use of gages, micrometers and other checking equipment.

do their part just as well as man could do it.

Now, to go back once more to the point mentioned a moment ago—that women are entirely capable of handling larger and heavier machines if adequate work handling facilities are provided. Let me give you an illustration:

The other day one of our superintendents noticed a woman on an assembly job where it was necessary for her to lift a weight getting close to the 25 lb. limit prescribed by Ohio laws. He asked the foreman to change her to a lighter assembly job. The woman said:

"I'll work any place you put me, but I don't want you to get the idea that this job is too heavy for a woman. I'm no pantywaist."

Wage Policy Described

I cite this instance simply to show that as far as we can see, women are not asking for any discrimination or any special consideration because of their sex. And that of course is one of the reasons why we have adopted our wage policy with respect to women. Our starting rate for women is 5c. less per hour than the starting rate for men, with an automatic 5c. hourly rate increase at the expiration of a 30-day probationary period. Women employees who have been through the six weeks training course in the vocational department of our local schools start at the same wage as men. In the operation of our own vestibule training school, women going through the school and starting along with men in the same classes go into our plant on the same pay basis as men.

FIG. 3—Women are well able to handle all types of machining operations, the only differentiation between men and women is on the basis of physical effort.

In short, while it is necessary for psychological reasons, under some circumstances, to start women at a rate slightly lower than that under which men are started, we are operating on the principle that women are entitled to equal pay with men for equal work done; and this, we are convinced, is the only fair basis of compensation.

You may be interested in the actual mechanics of putting women to work. Our new girls are usually put to work in pairs, side by side in the same department. Our supervisor of women introduces the girls to the foreman of the department, and paves the way for their acceptance in that department. The girls feel that they can talk to our supervisor of women on any personal matters which have to do with the feminine side of the picture—but they are definitely under the foreman, and their foreman is the boss.

Fig. 4—Older women are generally assigned to the assembly division.

Selecting a Costume

The question of work costume seems to be one which has bothered many companies who have considered taking women into their employ. In our shop, this worked out very naturally, without any difficulty whatever. The girls adopted, more or less as the standard costume, slacks, a sleeveless shirt, bandana handkerchief or other hair protection, and the machinist's apron. There were variations in colors and styles, and of course each girl likes to get her hair done in whatever way she chooses, but on the whole, feminine costume in our plant conforms to a general type which is practical for the sort of work performed.

Back in the days of not so long ago, we wondered what would be the effect on morale if we brought

FIG. 5—Work requiring manual dexterity and speed in repetitive movements is particularly suited to women.

women into the shop. I can tell you without any reservation that as far as our own plant is concerned, I believe the net result has been that of stepping up the morale of the entire organization. I wish you could go out with me into our plant and see the people working there, turning out the lathes that Uncle Sam has to have to win this war. They are all working side by side—handsome girls and women, strapping young men, older women, men of middle age—all plowing ahead—stepping together to get the job done.

There is a sort of camaraderie that develops from this mingling of the sexes in the plant which we never used to have when we had all men. What develops from this situation is a realization that *everybody*—not just ment, not just husbands, sons and fathers—but women too, sweethearts, wives and daughters — *everybody* — must get out and work, and work hard, to turn out what it takes to win this war.

Attentiveness to Work

I am convinced that all of us in the machine tool industry must of necessity prepare for the employment of women in rather large numbers before this present production emergency is over. And on the basis of our experience, I believe that those of you who still have this transition before you, may be agreeably surprised. I think you will find women far more attentive to their jobs than is the case with most men. The girls take their jobs seriously. When you walk out through the plant, you will see that the girls have their eyes on their work. They are not looking around the shop—they are not grumbling about this or that. They are frequently asking for suggestions as to how they can do their work better, and we are getting some mighty valuable ideas from some of the women in our plant.

For instance, to save floor space, our lathes are placed very close together. The work boxes are at one end of the lathe. This meant that the operator had to step from the normal working position in front of the lathe to the end of the lathe in the course of the loading and unloading operation. After one of our girls had been operating one of our lathes for several days, she asked the foreman if she could please have a little stand on each side of her, so that she could operate the machine without taking one unnecessary step. Here was an example of a woman applying in the plant exactly the same work-saving principles which she had learned in her kitchen. A man might not think about it, but a woman thinks about saving steps, and the result is increased output.

Now, in conclusion, there are two things I want to emphasize particularly in connection with this matter of employing women. Don't get right up to the dead-line without making preparations. There are two vital advance steps which must be made.

The first obviously has to do with toilets and rest room facilities. Entirely aside from obvious practical considerations, most states have laws dealing with toilets and rest room facilities for women. If you are going to employ women, you must install in advance the necessary plumbing and the necessary rest rooms. To get these things in time, you must put in your orders in advance, using your priorities to obtain the supplies you need. You can't do this at the last minute. If you are going to start hiring women in December, you must get in your orders for toilet and rest room equipment several weeks before.

The other point is that you must have a reasonably mature and experienced woman, capable of handling women's problems, on the job ahead of time, so that when you start to employ women, they will have a woman supervisor to whom they can turn with their particular problems—a woman supervisor who will understand from personal experience the nature of the work to be done and the questions that will arise from the feminine viewpoint. It is necessary therefore to obtain a woman of this type far in advance of the actual employment of large numbers of women. She should be brought in early, put through a course of training, with respect to the various operations involved, and made to understand that she is to function in the capacity of what you might call the "Dean of Women" in your plant. She is not the boss—the foremen and the superintendents are the bosses—but she is the person to whom women can bring any questions dealing with the woman's side of the picture, and she is the person to whom the girls can talk frankly as one woman to another.

I can imagine nothing more disastrous than the situation of a company who, let us say, on Dec. 1, publishes an advertisement asking for women to apply for employment and then, when the girls come swarming in, discovers that it has neither adequate toilet nor rest room facilities, nor a woman supervisor capable of handling the personal problems of women employees. Let me urge you therefore, to take steps immediately with respect to

these two points. After all, it seems to me that the machine tool industry may well step out in the front line in this matter of employing women—because it has been largely due to the accomplishments of the machine tool industry that women can be successfully employed in the war production program.

Owing to machine tool development and design, the machine tool now does the physical work which formerly was largely done by the operator. The machine tool has within itself the precision and the power needed to get the job done. All the operator has to do is to have the intelligence and the dexterity to operate the machine. It no longer takes muscle to be a machine tool operator. It takes a certain type of craftsmanship, which the younger generation of America have shown that they possess to a very high degree.

To my mind it seems very natural that the girls of America should be able to learn this craftsmanship just as well and as rapidly as the boys. Since our industry has largely been responsible for eliminating muscle power as a requisite of factory employment, I think we may as well take our medicine, and recognize that on the whole women can operate machine tools and help build them as well.

FIG. 6—A reasonably mature and experienced woman (right) is employed as a "Dean of Women" to help solve the problems of women employees.

A Library With Each Machine

WITH every Doall contour sawing and filing machine shipped these days by Continental Machines, Inc., there is included the Doall Library of Maintenance Manuals. This library contains information which key departments of any industrial plant would need in order to get effective and efficient operation from the contour sawing machine. For example, information and data directed to the engineering department contains the contour sawing handbook which presents hundreds of applications for contour machining. Another booklet, "A Chalk Talk on Forty Different Ways to Cut Machining Costs," shows short cuts that are of value to the draftsman in laying out his drawings for contour machining jobs. The booklet, "The Doall Trade School," describes training facilities offered for Doall operation. This school provides a five-week free course of training in contour sawing to customer personnel and enlisted men from our armed forces.

Information directed to the plant superintendent contains the same booklets as are directed to the engineering department, but with the further addition of the Doall operator's instruction manual.

The purchasing department receives leaflets and specification sheets for various sizes of Doall saw bands, file bands and other model Doall machines, as well as a replacement parts catalog. There is also a Doall attachment folder, showing over 20 ready-made attachments which add to the machine's versatility. Inventory sheets for saw, file bands and supplies are provided.

New Equipment . . .

Welding

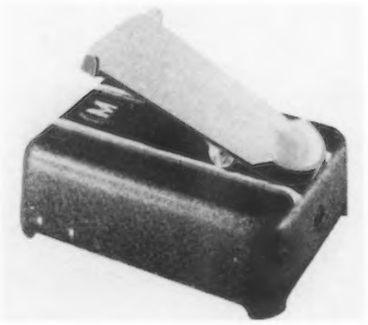
New developments in welders and controls are described in this week's review, along with electrodes and other accessories.

A NEW crater filler has been announced by the *General Electric Co.*, Schenectady, N. Y., for use with the GE Strikeasy arc welder. The crater filler, a foot accelerator for welders, is designed to provide the very close auxiliary control of heat required in welding thin material, such as aircraft tubing, and to permit tapering off of the welding current at the end of a bead in order to fill the crater which is otherwise left. The unit is a combination of a foot-operated rheostat for reducing the current

and a field forcing switch for providing a hot start or an increase in welding current when required, and is used to increase or decrease the heat setting to accommodate abnormal conditions at the beginning or end of a weld, or during a weld. Normal welding heats should be adjusted in the usual way. At the time of breaking the arc, the crater filler permits either a rapid or slow decrease in current down to the point where the arc is extinguished, thus permitting the operator to finish a bead without a crater.

D.C. Arc Welder Control

THE Arctrol, a foot-operated variable resistance unit, manufactured by *Mullenbach Electrical Mfg. Co.*, 2300 East 27th Street, Los Angeles, is designed to vary the excitation current of certain d.c. arc welders. In completing a weld with the Arctrol, the operator gradually moves the unit to the "off" position. This reduces the current and does not permit the formation of a puddle in which gas



or slag pockets would form. The Arctrol also provides complete control of the output of the welder. The operator can adjust the current for different welding positions and thicknesses of metal. Depressing the pedal to full "down" position gives maximum intensity to the arc. Conversely, the full "up" position snuffs out the arc.

Multiple Arc Control Station

GREATER welding output per machine, better control by the operator and improved welds on thin gage metal are obtainable through the use of the Honey Bee arc control station recently developed by *Wilson Welder & Metals Co.*, 60 East 42nd Street, New York. These arc control stations are made in capacities of 75 and 150 amp. and are an auxiliary electric device connected in series with the welding circuit of any constant potential arc welding generator. When two or more arc control stations are hooked up to a single generator, a

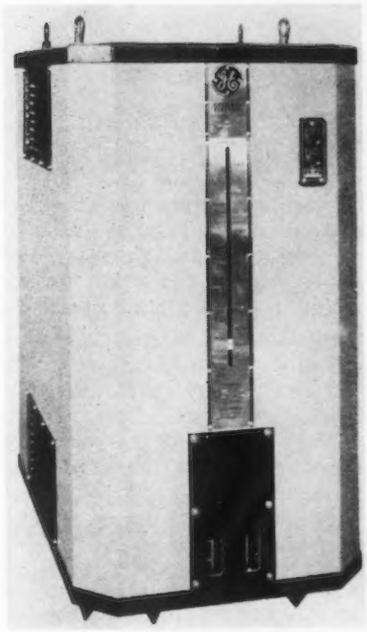
like number of welding arcs can be operated simultaneously. Each operator can regulate his own current and weld without affecting the other in any way. Remote control of the arc when the operator reaches the end of a bead, enables him to improve the quality of the weld deposit at the crater. By the use of two 75 amp. arc control stations, a 200 amp. generator can serve two operators instead of one. Each operator can draw precisely the amount of current he wants at all times, regardless of what current the other welders are drawing.

Automatic Arc Welding Equipment

COMPLETE equipment for automatic arc welding with heavily coated electrodes in cut

lengths has been announced by the *General Electric Co.* The essential elements of this equipment also have been made available in order that automatic arc welding heads originally designed for operation with thyratron-controlled coiled electrodes can be converted for successful welding with stick electrodes. It is particularly suited to

work where one or more complete joints can be made with a single electrode. Applications have included the welding of machine gun water jackets, ordnance shells, tank wheels, and refrigerator parts. The clamp for holding any standard stick electrode is attached to the end of a feed rod upon which two feed rolls operate to maintain the proper arc voltage through automatic thyratron control. The electrode is accurately guided and limit switches govern the extremes of movement in either direction.

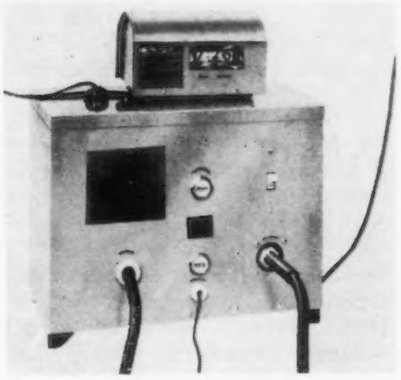


Transformers for Unionmelt Welding

GENERAL ELECTRIC CO. announces a new line of heavy duty a.c. welding transformers especially designed for Unionmelt welding. The welders are available in 750 and 1000 amp. sizes (NEMA) for 220, 440 and 550 volt power. Features of the line are built-in capacitors and built-in primary control. Motor-operated, remote adjustment of the welding current permits the operator to make current adjustments without leaving the work. Fan cooling conserves vital materials and space. Ample ventilation and the arrangement of ducts permits two welders to be mounted side by side without the need for extra space between them for ventilating air. The current output of each welding transformer is indicated by a large, accurately calibrated scale on the front of the case.

Remote Control Unit

HOBART BROTHERS CO., Troy, Ohio, has developed a new remote control unit which is now a standard production feature of all welders offered for sale by the company. This improved control is protected fully from accidental breakage by a metal pull-out handle set over the control dial and by cushion springs on the back of the porcelain rheostat. The new dial, it is believed, will increase weld qualities, especially welds made under high speed techniques. The remote control unit is easily set up by using an ordinary lamp cord extension to connect it to the machine and it places 100 steps of fine volt-amperage adjustment within the reach of the operator's hand. The large outer control dial, shown in the picture, is the field rheostat which controls the differential compounds, while the remote control unit adjusts the open circuit voltage.

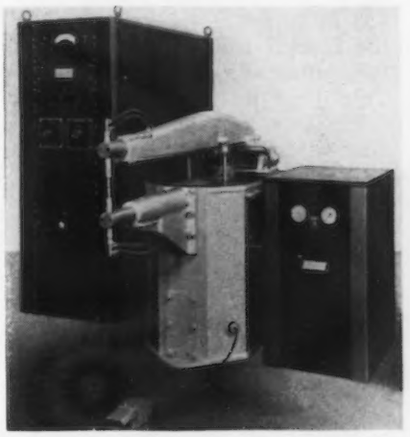


Electric Shock Protector

A DEVICE known as the Safti Kupler, manufactured by the *A-C Devices Co.*, Chicago, gives complete protection against shock to the operator of an electric welder of any size, voltage or amperage, while doing welding by a.c. welder. The device is so arranged that when the welder strikes his arc and starts welding, he gets the full power required to do the weld, but the very instant he breaks his arc, even momentarily, all welding amperage and voltage is completely blocked out of his welding cables. A green light shows visually the complete safety for the operator when he is not welding, and a red light signals when a full welding current is present and he must be careful. The Safti Kupler is arranged to operate on 60-cycle, 110-120 volt a.c. power lines and is portable.

Rocker-Arm Type Welders

DESIGNED to achieve a maximum of speed, economy and operating simplicity in capacitor discharge welding of aluminum, a new line of rocker arm welders for



stored energy resistance welding has been announced by *Progressive Welder Co.* These are available with the new Revers-O-Charge capacitor discharge as well as Frostrode refrigerating units for below-freezing welding. The machine has a retractable stroke of 9 to 12 in. The welding stroke has a range up to a maximum of 3 in. Upper and lower arms may be adjusted in and out for throat depth or may be turned for angle mounting of electrodes when necessary. Differential action double air cylinders are used for the welding stroke, the cylinder for the return stroke being smaller than that for the pressure stroke. Point dressing is done by exhausting the return stroke of the air cylinder by means of a three-way hand valve.

Progressive Welder has also introduced a standard line of conventional a.c. rocker arm welding machines in 48 models. They are provided with heavy duty transformers with water-cooled secondaries and pancake coils. The welders are available in four capacities with

three types of drive and a range of throat depths from 12 to 36 in. The lower arms are so designed as to provide a range of vertical adjustment giving a throat opening of from 8 to 16 in. with electrodes together.

Alternating Current Welder

A NEW alternating current welder, operating on what the company describes as a "perfect electrical circuit" which produces just the proper voltage for every current setting, has been announced by *Allis-Chalmers Mfg. Co.*, Milwaukee. The unit is designed to increase the efficiency and step up the speed of welding heavier, thicker metals. Using a new design principle, the transformer and reactor are built as an integral unit and the reactor coils surround the air gap, eliminating magnetic leakage. This provides continuous control from 35 to 250 amp. The welder is built without plugs, taps or switches

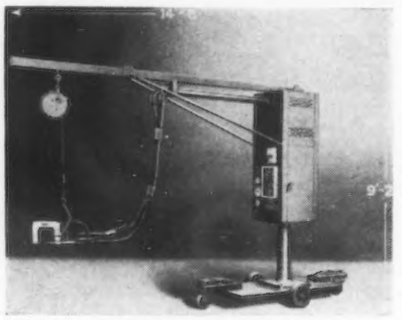
of any kind. Manual control at the top of the unit covers the entire welding range from maximum to minimum setting with less than a dozen turns of the control handle.

Air Cooled Arc Welder

ERGOLYTE MFG. CO., Lawrence Street at Erie Avenue, Philadelphia, has announced the development of a new heavy duty air-cooled transformer type arc welder, known as the "250 F." Capable of handling an electrode from 1/16 to 3/16 in., the new model has 24 heat steps, an input voltage of 230 volts and a current range from 15 to 250 amp. The 250 F has a 60-cycle frequency and operates on a single phase or one phase of a two or three phase current. Special frequencies may be built to order.

Radial Gun Spot Welder

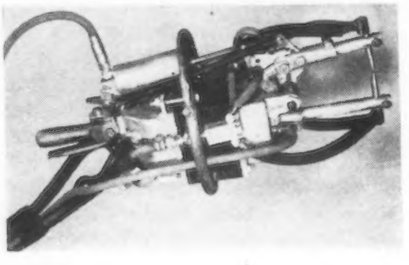
A RADIAL type gun spot welder, model P-1-R, is now being offered by *Sciaky Brothers*,



4915 West 67th Street, Chicago, in both stationary and buggy-mounted units. This new unit is equipped with a special Sciaky welding timer and operates on a single phase a.c., 220 or 440 volts. Hydraulic pressure is supplied by a hydro-pneumatic booster, which can feed a gun able to supply a maximum electrode pressure of 1800 lb. with 90 lb. per sq. in. of air supply. In steady production, this welder is capable of welding corrosion-resisting steel, pickled steel, zinc-coated steel and Monel metal in equal thicknesses of from 0.016 in. up to 0.064 in. It will also weld two unequal thicknesses up to a total welded thickness of 0.500 in., provided that one of the two thicknesses does not exceed 0.040 in. In welding pickled mild steel, a speed of 180 welds per min. can be attained on 0.032 in. sheets.

Steel Welding Installation

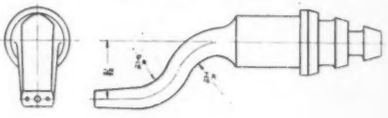
A STANDARDIZED flexible installation for the production spot welding in assembly of light-gage aircraft steels has been developed by *Progressive Welder Co.* Including a number of unusual features, such as refrigerated electrodes, variable throat depth, and welding transformer built right into a light-weight welding gun, the welding installation includes a



jib crane with 6 ft. trolley type arm. The gun hanger is so designed that the gun may be swiveled 360 deg. in any plane. The air-operated gun is light and is spring counterbalanced. It may be adjusted for throat depth merely by changing the electrode arms. A toggle lever provides for quick retraction of the electrodes to clear obstructions. Pushing the control button on the gun actuates an electronic timer mounted on the jib-crane column through an air valve located immediately above the swiveling hanger.

Flame Cutting Tips

TWO additions to their line of oxyacetylene flame cutting tips have been announced by *Air Reduction*, 60 East 42nd Street, New York. The first, known as style 108, is bent in an offset shape to permit cutting along a line 21/32 in. from the vertical centerline of the torch head or barrel. The tip has milled flat sides, with two preheat flames, and is suitable for either machine cutting or hand cutting operations.

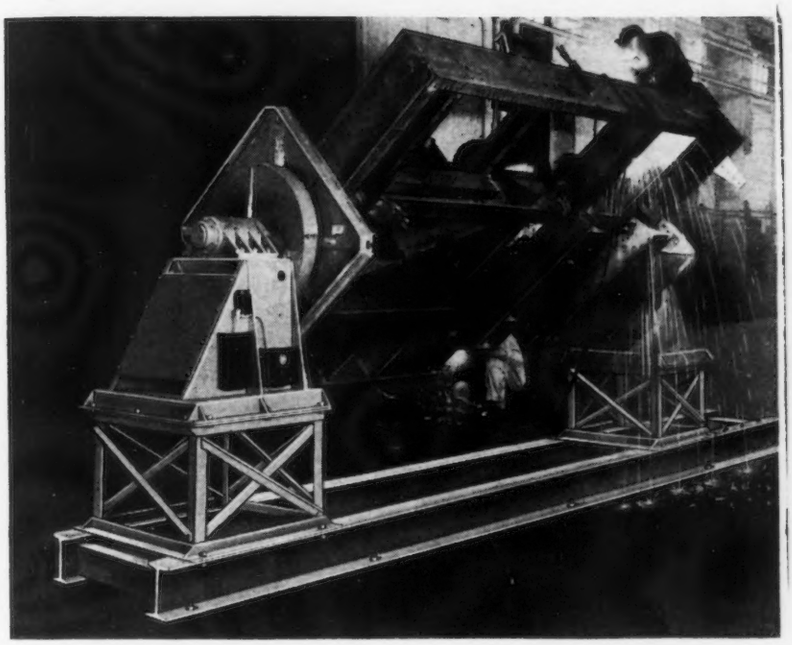


STYLE 108 — LIGHT PREHEAT OFF-SET ACETYLENE CUTTING TIP

It is available in sizes No. 1 to 3, for cutting steel up to 1½ in. thick. The other new addition is the style 139 straight tip with one preheat orifice, for certain machine or hand cutting operations. Made in sizes No. 0 to 3, style 139 is particularly adapted to splitting angle iron, straight-line cutting, using a straight edge as a guide, or sheet metal cutting operations in which light preheat is desired.

A.C. Arc Welding Electrode

AN all-position high-quality a.c. electrode, Type W-26, has been announced by the *General Electric Co.* It provides a strong, forceful arc having good fusion, excellent penetration and uniform characteristics free from arc blow. It is available in ⅛ in. and 5/32 in. diameters. Welds made with this electrode of the 5/32 in. diameter in the "as welded" condition have an ultimate tensile strength of 72,000 lb. per sq. in., yield point of 60,000 lb., elongation in 2 in. of 26 per cent, and a reduction of area of 46 per cent.



Rotating Welding Fixture

A ROTATING welding fixture consisting of a headstock and tailstock combination for position-welding large cumbersome objects has been developed by the *Ransome Machinery Co.*, Dunellen, N. J. The headstock table top is fixed in a vertical position with its spindle shaft turning in double Timken roller bearings. The driving motor and self-locking gear reduction are completely enclosed with the main frame. The distance between the headstock and the tailstock is made variable to accommodate objects of different lengths, by mounting the tailstock on heavy I-beams and moving it to accommodate the object to be welded. Height adjustment is accomplished by providing simple sub-bases to suit the conditions of service. Where a difference in elevation between the headstock and tailstock units is desired the main base of the units is pivoted at one end and provided with a hydraulic jack at the other. These tools are made in various sizes in capacities up to 16 tons.

Gas Welding Flux for Aluminum

AN improved, free-flowing flux for the gas welding of aluminum and aluminum alloys is announced by *Park Stewart*, 1036 Carbis Street, Worthington, Pa. Known as Flo-Ez-Flux, this flux will not solidify or deteriorate. It is packed in a glass container to prevent corrosion and protect the flux from moisture and is available in a large number of sizes ranging from ¼ to 25 lb.

Heating Unit for Pipe Welding

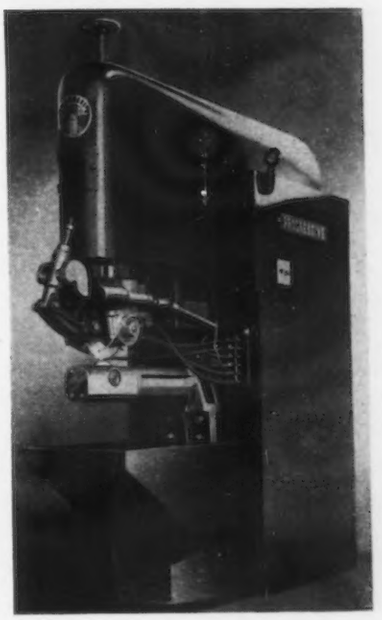
A WRAP-AROUND heating unit for preheating and stress relieving of field welds in pressure pipe, has recently been developed by *H. O. Swoboda, Inc.*, New Brighton, Pa. These electrical units consist of resistance wire sheathed in refractory insulation. For preheating, two heaters are wrapped around the pipe, one on each side of the joint. After the weld, a third unit is wrapped directly over it to create a uniform temperature in the joint. Heat radiation is held down by wrapping the area in asbestos or similar insulation. One of the outstanding features claimed for the new device is an automatic control panel, which by means of thermocouples, records and controls the individual point temperature. It is possible to preset the complete process of heating, soaking and cooling, and increase simultaneously the heat to stress relieving temperature at a predetermined rate. Eight sizes of heaters are available for pipe from 1½ to 24 in. in diameter, and they may be combined to permit treating various types of joint, including pipe to fitting, and pipe to valve joints.

Aluminum Welding Lens

THE Burt-Weld lens, manufactured by *B. F. McDonald Co.*, 1248 South Hope Street, Los Angeles, is designed for aluminum welders. With this lens, only a pale cone of flame at the tip of the welding torch is visible. The aluminum welding rod and the working puddle of aluminum are both clearly visible. The lens is scientifically ground, polished, and optically perfect,and fits any standard welding goggle accommodating a 50 mm. round lens. For a description of this lens, see THE IRON AGE, July 30, p. 62C.

Seam Welders

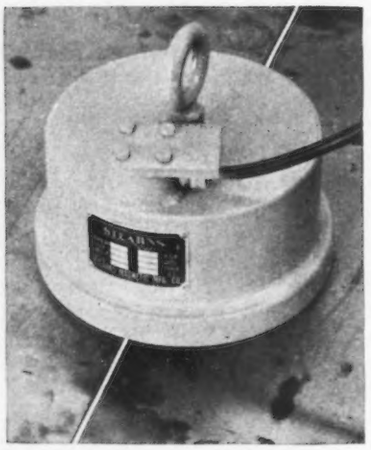
THE new Progressive seam welders, manufactured by *Progressive Welder Co.*, East Outer Drive, Detroit, are designed for either interrupted or continuous seam welding and incorporate all the latest developments in seam welder design. Operating pressure is obtained through a double-acting adjustable stroke air cylinder mounted directly on head support of the machine. A double action, solenoid operated valve controls air pressure on the pressure (top) side of the piston and introduces air at line pressure on the lower side of the piston for rapid return of the head. The solenoid valve is operated



through a two-stage foot switch. Adjustment of the stroke is provided by means of a hand wheel controlling the position of a dummy piston in the machine head. The machines are designed for use of standard RWMA welding wheels, and are externally water-cooled.

Magnetic Welding Clamp

STEARNS Magnetic Mfg. Co., Milwaukee, has designed a holding magnet or magnetic welding clamp. This magnet is designed in various sizes and the terminal for energizing cable is well protected from shock and damage. It



may be used in drawing and holding plates together to make the welding process more easily accomplished. By use of the holding magnet, the plates are drawn to a level alinement, with the edges brought flush against the surface of the magnet. By tacking welds to the plates on either side of the magnet, the welder is able to maintain alinement.

Arc Welding Electrode

A NEW electrode, known as the "Fleetweld 11" has been introduced by the *Lincoln Electric Co.*, Cleveland, for use with its Fleet-Fillet technique (THE IRON AGE, April 2, p. 129). It is of shielded arc type and heavily coated to exclude oxides and nitrides from the weld. The electrode is held at an angle of 45 to 60 deg. with the horizontal plate and 90 deg. with the electrode path along the joint. The arc produced is so short, the electrode coating practically touches the metal. Designed to complete a weld in one pass, "Fleetweld 11" is made in 18-in. lengths and two diameters, 3/16-in. and ¼-in., packed in 50 lb. cans.

Welding Rod Coating

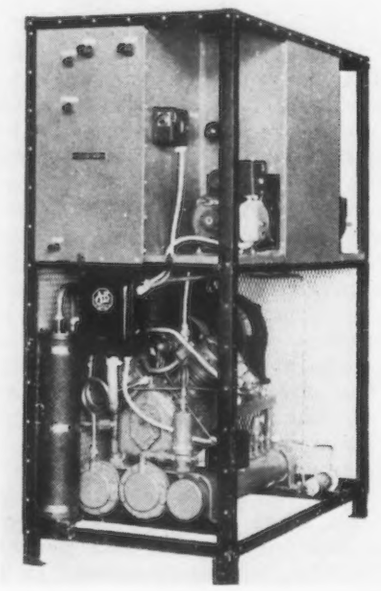
TWO new grades of potassium silicate have been announced by the *Philadelphia Quartz Co.*, 121 South Third Street, Philadelphia. Called Kasil No. 2 and Kasil No. 6, they are specially concentrated solutions developed for the manufacture of welding rod coatings. Kasil No. 2 is a 32 deg. Baume product with the molecular ratio of 1:3.92 and Kasil No. 6 is 40.5 deg. Baume, molecular ratio 1:3.29. Other uses for the Kasil potassium silicate include carbon electrodes, paints and applications where non-blooming films are desired.

X-Ray Developer and Fixer

EASTMAN Kodak Co., Rochester, N .Y., announces two new solutions known as liquid X-ray developer and liquid X-ray fixer. The X-ray developer can be used as a normal developer, a rapid developer (3 min. at 68 deg. F.) and a replenisher. When used as a replenisher, the original development time is maintained and the life of the solution extended. Liquid X-ray fixer rapidly clears and fixes films and has an effective hardening action. Both products are available in 5-gal. sizes.

Spot Welding Tip Cooler

FAIRBANKS, MORSE & CO., 600 South Michigan Avenue, Chicago, announces a new self-contained cooling apparatus which circulates a special non-corrosive, non-precipitating solution through welding tips of a spot welder. Operating fundamentally as a refrigerating machine, the unit is equipped with two pumps driven by motors having cycling overload relays. A recirculating pump, operating continuously with the compressor, circulates Freon-12 refrigerant through the evaporator for high heat transfer and a turbine type pump circulates the special solution of high specific heat characteristics from the unit to the welding tips and back to the unit. A thermostatically controlled, four-cylinder V-type compressor is also equipped with horsepower cutout.



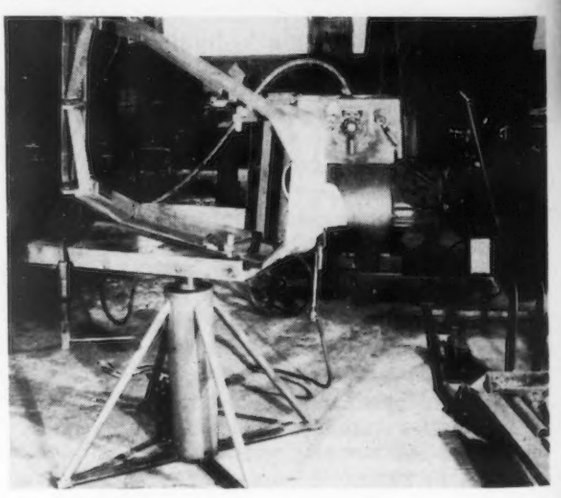
A.C. All-Position Welding Electrode

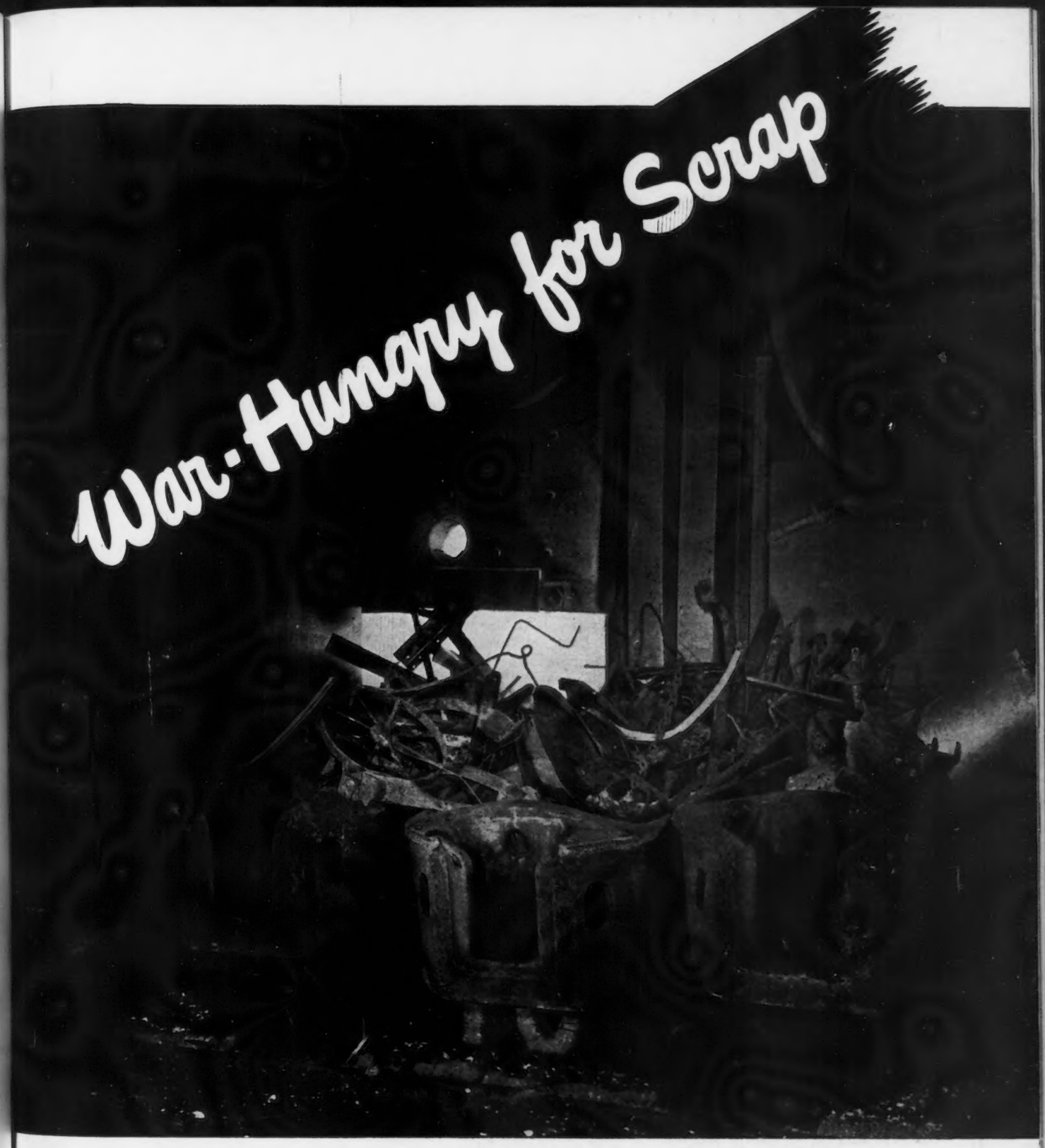
A NEW electrode designed specifically for all-position welding of mild steel with a. c. type welding machines has been developed by *Wilson Welder & Metals Co.*, New York, in the following diameters: 1/16, 3/32, ⅛ and 5/32 in. The Wilson No. 530 electrode complies with all requirements of AWS Classification E6011. Average operators have no difficulty in securing good fusion and complete penetration with this electrode and the finished weld deposit is quite smooth and has a uniform surface contour. The same electrode is sold through the *Air Reduction Sales Co.*, New York, under the designation of Airco No. 230 electrode. The following physical properties have been obtained on test specimens:

	As Welded	Stress Relieved
Ultimate tensile strength	70,000-75,000	65,000-70,000
Per cent elongation in 2 in....	25-30	30-35

Hydraulic Elevating Welding Table

LYON - RAYMOND CORP., N. Y., has introduced a hydraulic elevating welding table with revolving top. This table can be kept at the most convenient welding heights by means of a foot operated hydraulic pump. The standard stock size of this table has a capacity of 2000 lb., platform size 30 x 30 in., lowered height 26 in., elevated height 40 in., elevation 14 in. The table is portable.

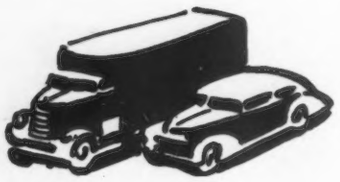




Hungry steel mills don't win wars. It takes enormous tonnages of scrap to meet war production goals—140,000 tons of scrap must be collected every day. That's a lot of old boilers, obsolete machinery, abandoned water-towers, worn-out jigs, patterns and molds. If this scrap isn't obtained quickly, steel production will slow down and the whole war effort be imperiled. If you haven't made a start in the nation-wide salvage drive, get in the scrap today. Get out the "junk" that misses routine collections. Call the nearest junk dealer . . . he'll pay you for it and start your scrap on the way to war . . . and Victory. ALAN WOOD STEEL COMPANY, Conshohocken, Pa.

Assembly Line . . .

• Automotive industry more closely integrated into broad armament production pool . . . Trend appears to be increasingly under the aegis of military branches . . . Plate-processing pool an example of Ordnance-fostered program.



DETROIT—What formerly was the automotive industry is being more and more closely integrated into one broad production pool for the output of armament. That may seem a trite statement, for it has been said many times before. But it is a fact that today the drift definitely is more pronounced toward complete sublimation of company activities, even company names, into the broad arms program.

Interesting in this picture is the fact that the flow toward integration appears increasingly under the aegis of military branches, rather than civilian agencies. If military and civilian forces are struggling for control of the entire war production program, as indicated in Washington advices, the direction of this situation becomes most significant.

There are no statements and few concrete actions to bolster the belief that the automotive people appear to be swinging gradually into the military orbit. But there are intangibles in the picture, next to impossible to put down on paper, which point to that conclusion.

For example, consider the closer liaison developing between the Automotive Council for War Production and the Army Ordnance department, as described here last week. This is something new and something which appears to be a "movement in force." When it is considered that roughly half the automotive company contracts for war goods stem from ordnance, the community of interest which is developing closer ties obviously is strong. The automotive-ordnance relationship appears heading toward the same warm degree which has always characterized the industry's bond with the air forces, nearly as large a customer as Ordnance.

Also to be set down in any such bill of particulars is the relationship between ordnance and a group of one-time auto parts makers and other miscellaneous producers welded together into an armor plate processing pool, described below.

CONSIDER, too, the increasingly important status of Army and Navy people in the general automotive labor picture, grown now to such a point that the central district Air Corps plant protection officer recently ordered discharge — and "made it stick"—to two war workers found to be instigators of slowdown trouble.

All the intangibles do not bear out this thesis of closer automotive-military affinity. The fight of the auto industry for its plan of materials distribution, in opposition to that set forth by Ferdinand Eberstadt, a supporter of Army policy, is a case in point.

The general drift, however, appears natural. At the start it was WPB which smoothed the procurement of materials with which automotive plants could fill orders. It was WPB which set up a framework of operations. Now, however, the conditions of the initial war period have changed: materials are tight in every field; many regulations which appeared sound last spring have mushroomed into mountains of red tape. And the requirements of arms production have necessitated much closer working arrangements between the military buyers and the manufacturer sellers. Today, it would appear, the buyer - seller relationship itself might develop a desire for closer liaison unimpeded by controls of a supervisory agency, such as the civilian side of WPB.

For the strictly civilian aspects of WPB in the automotive scheme of things have diminished in significance today. The Automotive Branch of WPB itself is centralized in Washington, and by that move has loosened quite considerably its earlier intimate day-by-day contact with the automotive plants. (While WPB has been gravitating away from Detroit, the Army Ordnance tank-automotive center has been moving in.)

MUCH automotive feeling is that there should be major elimination of barriers, reflected in the red tape of WPB regulations and OPA rulings and in the occasional authority vested in unqualified government officials. Failing to obtain any such concessions from the civilian side of the government, the industry may be turning to the Army for support. If such a swing is completed, the Army will have the considerable strength of the nation's largest war production groups backing its conflict with the "civilian" forces in WPB. That strength may prove the margin for an unquestioned victory for the military in any undercover battle for control.

WPB, meanwhile, may be taking note of this situation. Proposed reorganization frameworks in WPB provide for smoothing out the production roadway by more logical correlation of activities and direction. Under this indicated reshuffling, the Automotive Branch would supervise materials allocations for tanks, and armored cars, as well as trucks, trailers and buses. This branch would also supervise any procedures devised under the new materials control plan, insofar as they apply to automotive, vehicle and parts production.

The plate-processing pool of manufacturers, referred to, is an interesting application of how Ordnance fostered a production program. The story starts a year back, when Standard Steel Spring Co., of Coraopolis, Pa., began to ponder its place in a carless war period and dug into the possibility of its handling armor plate work with its bumper and spring-making equipment.

Contact was made with Great Lakes Steel Co., Detroit plate producer. It was found that the heat treating facilities of Standard Steel Spring were readily adaptable to this war job, and a sizable subcontract was obtained. Hardly had work begun on this job when Ord-

SCRAP SALVAGE
is a LAW *at* GREENFIELD

SO ACUTE is America's metal shortage — particularly of high speed tool steel — that today the importance of scrap cannot be overemphasized.

Industry has a responsibility it cannot evade, not only to *reduce* scrap-making in plants, but to *salvage* it to the last ounce. Even the tungsten from filings and sludge must be recovered and turned back into productive channels.

The GREENFIELD TAP AND DIE CORPORATION has assured our Government that a rigid plan of salvaging is now in force in every department of its plants. Even displays, historical pieces, test and "useful after the war" items must go.

What "*Greenfield*" is doing, must be done by every factory and shop throughout the country. Failure to carry out a scrupulous system of salvaging can almost be viewed as actual sabotage!

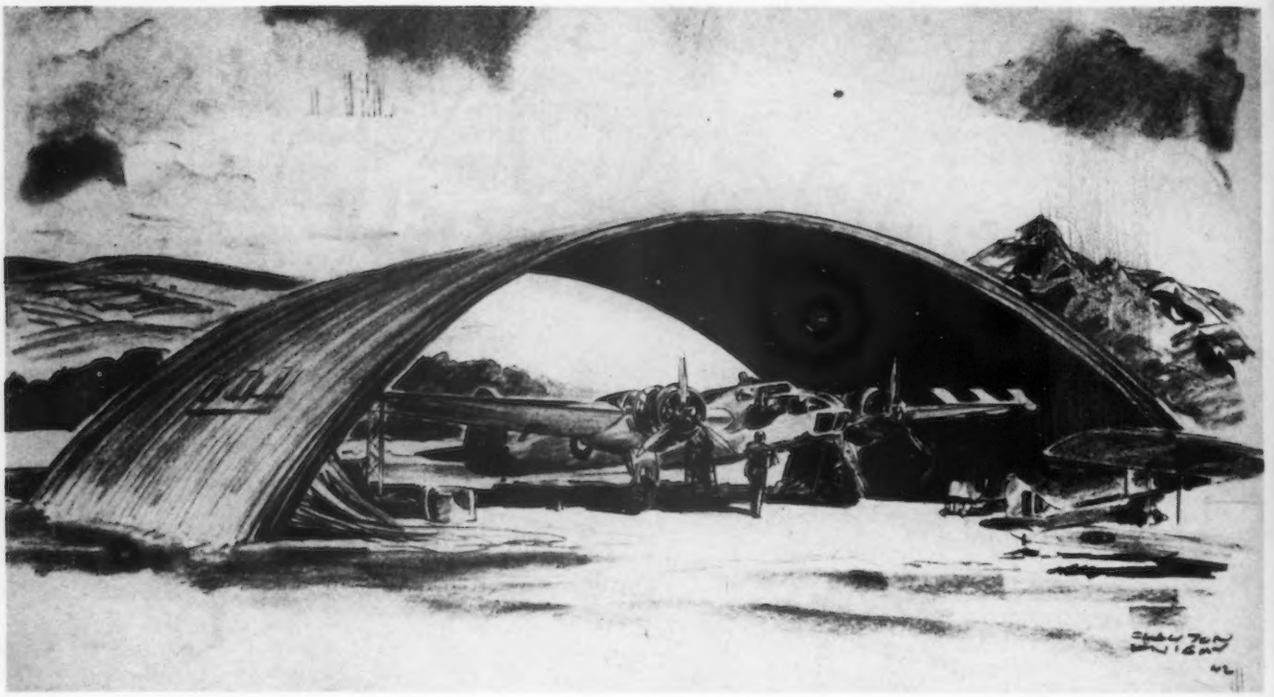
★ ★ ★

GREENFIELD TAP AND DIE CORPORATION
GREENFIELD • MASSACHUSETTS
DETROIT PLANT: 5850 Second Boulevard
WAREHOUSES in New York, Chicago and Los Angeles
In Canada: GREENFIELD TAP AND DIE CORP. OF CANADA, LTD., GALT, ONT.

ARMY E NAVY

GTD GREENFIELD

TAPS • DIES • GAGES • TWIST DRILLS • REAMERS • SCREW PLATES



Wide-World Photo

DISPERSAL HANGAR: This odd looking hangar, sketched by artist Clayton Knight, at the edge of an English airfield, is a type being used by the British for repair jobs that cannot be done in the open. The plane pictured in the hangar is a Bristol Blenheim night bomber.

nance came to the company and asked if other firms might be qualified to take on the same kind of work.

The Coraopolis company contacted erstwhile competitors and others, and in 18 days set up a pool nucleus of about a dozen companies.

TODAY this pool has grown to 31 member firms, centralized in the offices of the armor plate division of Standard Steel Spring, at Detroit. This pool takes the plate output of Great Lakes Steel, heat treats and straightens it, then cuts it to sizes specified by eleven tank and other armament builders.

Present members of the group, aside from the two plants of Standard Steel Spring at Coraopolis and one at Gary comprise these firms:

A. & B. Stove Co., Battle Creek, Mich.; Ames-Baldwin Wyoming Co., Parkersburg, W. Va.; Buick-Youngstown Co., Youngstown, Ohio; Burton Auto Spring Corp., Chicago; Chicago Vitreous Enamel Products Co., Chicago; Cleveland Co-Operative Stove Co., Cleveland; Cribben & Sexton, Chicago; Detroit Steel Products Co., Detroit; Electric Auto-Lite Co., Springfield, Ohio; Florence Stove Co., Kankakee, Ill.; General Spring Bumper Division of Houdaille - Hershey Corp., Detroit; Gerity-Adrian Mfg. Co., Adrian, Mich.; Heat Treating Corp., Streator, Ill.; Holland Furnace Co., Holland, Mich.; Ingram-Richardson Mfg. Co., Beaver Falls, Pa.; W. B. Jarvis Co., Grand Rapids; Jones & Laughlin Steel Corp., Pittsburgh; Kalamazoo Stove Co., Kalamazoo; Maremont Auto Products Co., Chicago; Mather Spring Co., Toledo; McInerney Spring & Wire Co., Grand Rapids; Michigan Bumper Corp., Grand Rapids; Midland Steel Products Co., Detroit; Porcelain Metal Products Co., Carnegie, Pa.; Pressed Steel Car Co., Pittsburgh; Simonds Saw & Steel Co., Fitchburgh, Mass.; United Alloy Cutting Co., Detroit; West Pittston Iron Works, West Pittston, Pa.; Youngstown Steel Car Co., Niles, Ohio, and Youngstown Steel Door Co., Youngstown, Ohio.

It Was Lindberg's Idea

• • • **The cartoon** published on page 134 of THE IRON AGE, Oct. 22, entitled "At the Metal Show" was reprinted from a publication issued by the Lindberg Engineering Co., Chicago. (A young woman stationed in the Lindberg booth was a central figure in the cartoon. Remember?)

Two Lesson Books on Welding Recently Published by Bruce

• • • **Two lesson books on welding,** especially suited for training programs, have been written by M. S. Matteson, Boys' Technical High School, Milwaukee. One is devoted to oxyacetylene welding and contains 24 lessons, price 90c. The other is devoted to electric arc welding and also has 24 lessons, price 50c.

Both books are well illustrated with simple sketches, mostly isometric line drawings, and are bound in paper covers. They are available from the Bruce Publishing Co., Milwaukee.

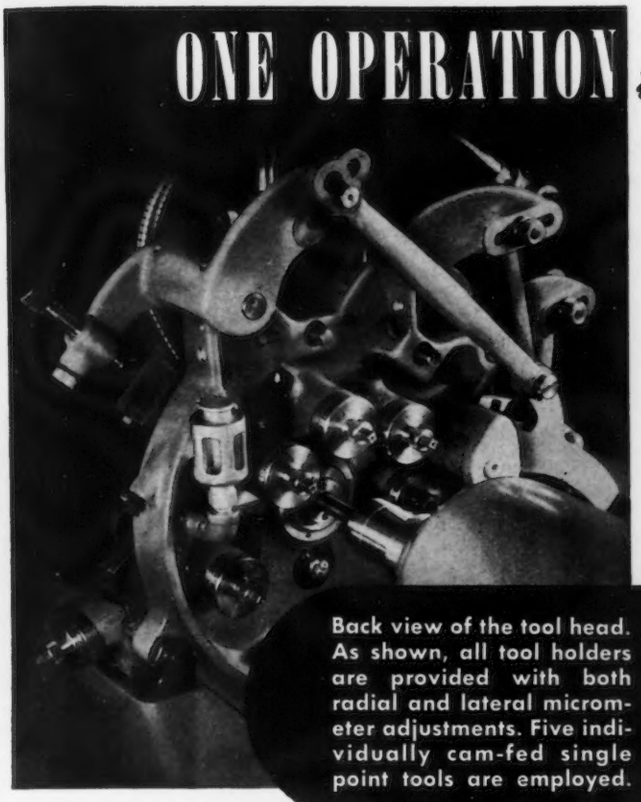
Removal of 20 Spans Invited by Railway

• • • **International** Railway Co., Buffalo, is inviting proposals for the purchase and removal of 20 bridge spans now in place on its highspeed right-of-way between Buffalo and Niagara Falls.

The bridges were manufactured by the American Bridge Co. in 1916 and 1917 and were erected during those same years by the Pittsburgh Construction Co. They are adaptable to maximum highway loadings now in use (Cooper's E-40 plus).

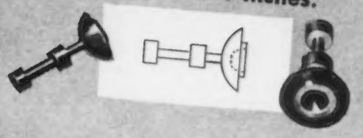
ONE OPERATION *to Produce from Bar Stock*

EXTREMELY ACCURATE HIGHLY FINISHED Parts Such as These



Back view of the tool head. As shown, all tool holders are provided with both radial and lateral micrometer adjustments. Five individually cam-fed single point tools are employed.

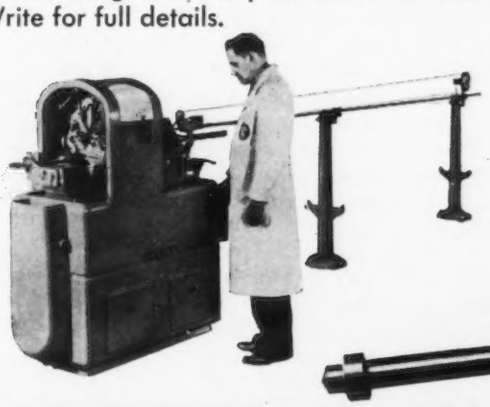
Part—9/16" long—four diameters between 1/16" and 5/16"—one formed curved surface — one counterbore formed without use of attachments.
Material—Brass.
Production—120 per hour.
Tolerance— ±.0005" on all diameters.
Finish—30 to 50 Micro-inches.



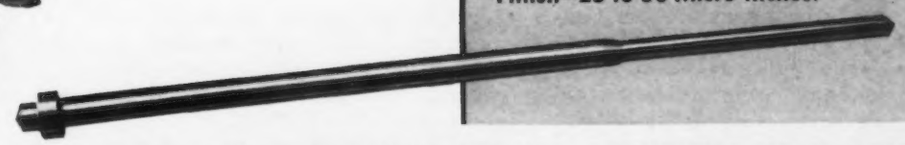
Parts shown are actual size

A wide variety of small, accurately finished parts can be produced on a high production basis on the Wickman High Precision Automatic. The collet capacity is up to ½" diameter. In usual operations, the maximum turning length is 4 inches, although this can be exceeded when parts such as that illustrated below lend themselves to a double feed. 28 spindle speeds up to 7000 R.P.M. and infinite feed rates are available. By the use of attachments . . . supplied as standard accessories . . . drilling, threading, tapping and slotting can be performed on this machine. Write for full details.

Part—2" long—three diameters between 1/8" and 5/32"—threads, 32 per inch, produced with self-opening rotary die head mounted on threading attachment—a standard accessory for the machine.
Material—Stainless Steel.
Production—40 per hour.
Tolerance— ±.0002" on center diameter.
Finish—15 to 40 Micro-inches.



Part—4 7/8" long—four diameters between 7/64" and 9/32"—two pivot points—one taper. Double feed is used to secure extra length.
Material—High Carbon Steel.
Production—15 per hour.
Tolerance— ±.0005" on all diameters.
Finish—25 to 50 Micro-inches.



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(SWISS TYPE)

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Washington . . .

• New proposals by Illinois Congressmen would enable Congress to hire own expert advisers with objective of restoring its fading powers . . . Present dependence on government agencies is cited.

WASHINGTON—Fear is growing in Congress of the loss of constitutional Government because of the necessity during the war of reposing more legislative authority in the President. However, the conventional attitude is to say that the apprehension that Congress will never get back its delegated authority when peace returns is the chit-chat of scaremongers and to be expected. Talk of the possibility of dictatorship is scouted on the basis that every peace so far has seen normal Government restored.

The press is under attack now. Congress and its committees are being criticized by executive agencies and others in high places. Never before has the war begotten increase of executive power been superimposed on so much authority already granted. These things are irking a growing number in Congress without regard to partisanship. The Supreme Court, it is charged, has been filled with appointees whose slanting philosophy dictate opinions guaranteed to agree with the Administration's social ideals.

The President, it is pointed out, has told Congress, "You do it, or I will." Turning on its own membership these critics blame Congress for tamely yielding in the last 10 years and passing "must" legislation without thought as well as appropriating billions without knowledge of how or where it was to be spent.

Clearly with this situation in mind Representative Everett Dirksen Republican from Illinois, has introduced three bills which purpose to restore public esteem for Congress by modernizing its procedures. Whether the bills will pass, or if they do, whether they will restrain the eclipse of democracy threatened by executive encroachment are important issues. For Congress remains, however impotent, the potential voice of the people.

CONGRESSMAN DIRKSEN'S proposals are briefly that since Government has become so complex, and the tools of Congress so inadequate to maintain a competent check over executive functions, new permanent bodies of experts must be attached to Congress. Congress would hire engineers, technicians, lawyers, accountants and specialists in the field of social reform to do the checking—a borrowing of the executive technique.

House Concurrent Resolution 84 proposes a four-point "congressional charter" calling for the creation of a legislative post-war planning and reconstruction service to aid Congress in coping with post-war problems on the domestic front. Congress would be staffed to make a constant operations check-up on the activities of the various agencies in the Executive Branch. A joint committee would be created to more constructively and effectively participate in the war effort, and an agency, the Congressional Planning and Reconstruction Service, would be set up to better deal with and prepare for the problems of peace.

House Resolution 7721 would expand the facilities of the General Accounting Office and staff it with experts in a separate department to be known as the Federal Efficiency Service to be at the command of the National Legislature designed to make a continuous check on the functions and activities of the various Governmental bureaus.

HOUSE Joint Resolution 353 establishes a Congressional High Command, a joint committee consisting of 42 members, evenly divided between the House and Senate and composed of members of the Military and Naval Affairs Committee and Appropriations Committees which would consider matters relating to the conduct of the war and the armed forces. This is an attempt to unify the committees of Congress and create a body of legislative experts, not so unwieldy as the separate committees —thus saving the time of busy men in the military, naval and related agencies who are summoned many times weekly to testify.

In justifying the streamlining of Congress Mr. Dirksen said:

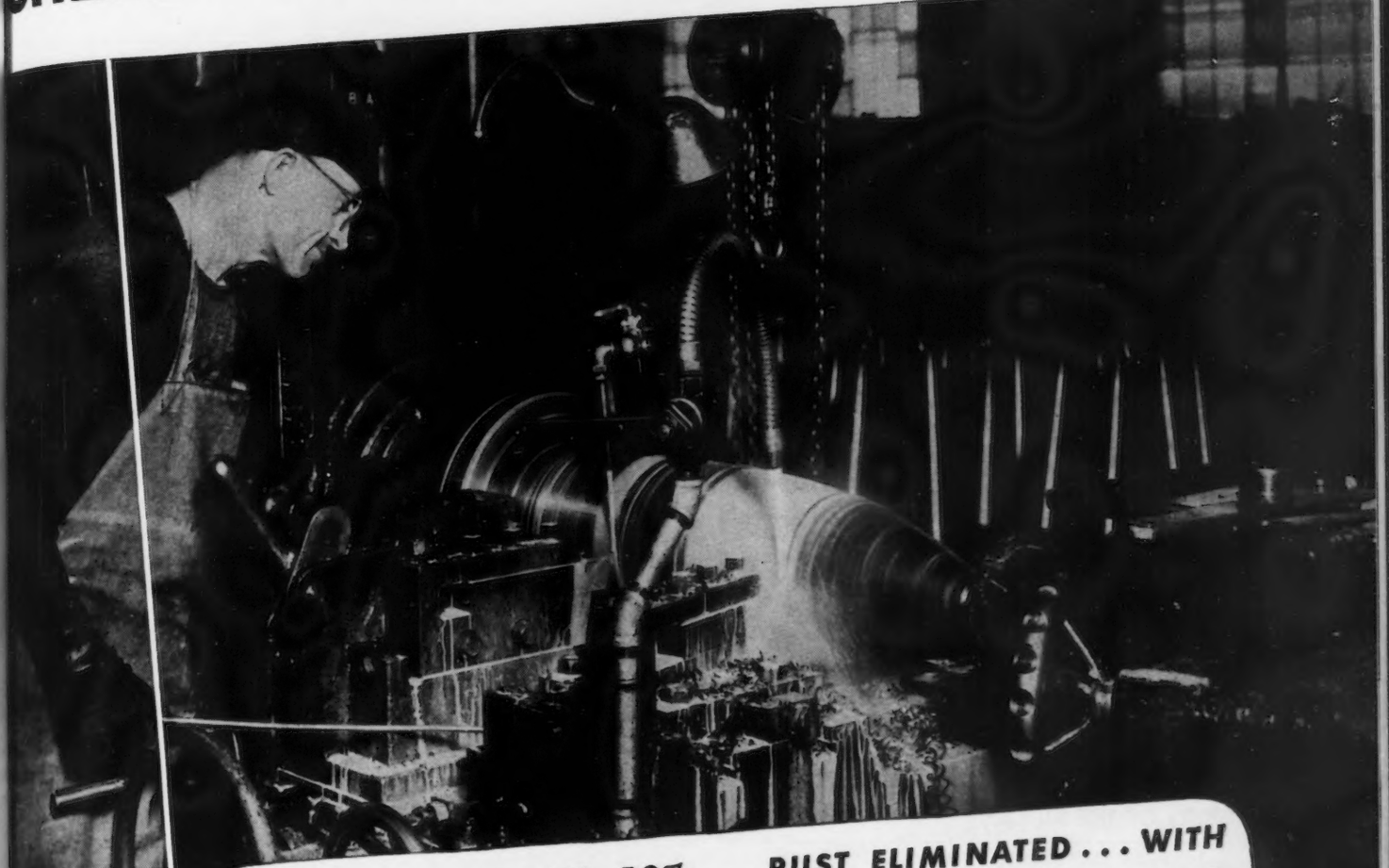
" . . . I am persuaded that the Congress as a body can do a far better job and it will do a better job if it will divest itself of the fear that we somehow experience because we are afraid of the reproaches of the people when we do something for ourselves and spend a little money upon ourselves as an institution to make this a more effective body. When we do that instead of being pushed around by the Executive Branch and by the bureaus of Government we will do a little pushing on our own score, in the interests of better government."

"I HAVE not heard one but a thousand lamentations in the well of this House over the years relative to the growing power of the Executive and the growing power of the Governmental bureaus, but is it not a fact that we are slavishly dependent upon those bureaus today for information, for data, for advice, for guidance, for the very good reason that the Congress has no instrumentality or weapon of its own for such information. How freely figures and statistics from Government agencies are quoted on the floor! How frequently bureau opinions are echoed! What about the accuracy and completeness of such opinions and statistics?"

Mr. Dirksen expressed the opinion that if the Executive Branch has the instrumentalities at its command and the Legislative Branch does not that there must be a constant growth of the executive power and a diminution of the legislative power until the situation is corrected.

Mr. Dirksen pointed out that if there is to be post-war planning

SHELL PRODUCTION DELAYS *Blasted!*



TOOL LIFE INCREASED 50% . . . RUST ELIMINATED . . . WITH SUNOCO EMULSIFYING CUTTING OIL

In one of America's largest armament plants, better shells are rolling off the production line faster because of the job Sunoco Emulsifying Cutting Oil and Sun Oil Engineers are doing.

Short tool life and a bad rust condition were retarding production. Tests were made with ten prominently-known soluble cutting oils to determine the best for their purpose. Sunoco was selected. At the suggestion of Sun Oil Engineers — those capable Doctors of Industry — a change also was made in the method of applying the soluble oil. Now tool life has increased approximately 50% . . . and the rust problem is a thing of the past!

This is typical of the service these Doctors of Industry and Sunoco Emulsifying Cutting Oil are rendering to industry in the drive for victory production. Remember these engineers . . . and the products they offer . . . are ready, willing and able to help you boost production in your plant. For helpful case histories of what they have done for other leaders in the metal working industry, write for your free copy of "Helping Industry Help America."

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WAR BONDS
AND STAMPS

SUNOCO

SUN PETROLEUM PRODUCTS HELPING INDUSTRY HELP AMERICA

Press Assoc. Inc. Photo

IT'S WOOD: This is the new British "Mosquito" reconnaissance bomber that has demanded so much attention with its widespread use in connection with RAF day and night raids on Nazi cities. It is powered with two Rolls Royce engines and is capable of carrying four 20-mm. cannon and four light calibre machine guns. Notable about this plane is the fact that it is of wooden construction—a result of critical metal shortages which affected England some time ago. Research into the use of wood at that time ended in the production of this highly effective plane by De Havilland.

and reconstruction and if there is to be a broad policy in this direction which Congress must pass, then Congress must be armed and staffed so as to go into the executive agencies and make independent investigations in the field, and assemble all of the data that are necessary on which to predicate some kind of a reasonable and intelligent judgment. The problem presented by the demobilized Army and unemployment, the reconversion of industry and public works, should all be considered in advance, Mr. Dirksen insisted.

He called for a "diagnosis before the operation," and for the arming of Congress in advance with reports, data, information, field investigations and records with which to work. Congress has been content so often to vote the money and have it expended "and then we get a report, and then we speechify on the subject, but it does not do a bit of good."

In regard to war expenditures, Mr. Dirksen rapped:

"Do not you remember some of those projects (pre-war projects which violated appropriations provisions)—a $1,000,000 race track at Del Mar, Cal., that was turned over to Bing Crosby's brother? Are we going to have $125,000 cow barns like the one at the University of Louisiana? Are we going to have other projects like rat-catching projects at $2.97 a rat on the wharves at New Orleans? Are we going to have instances where they go out and buy 825 axes to chop down 50 trees? All of this is in the hearings. It is a matter of fact; it is documented information. My friends and colleagues, the time to prepare is now. The time to get ready, the time to go out and make a survey and get facts is in advance and not afterward. It is now."

THE BULL OF THE WOODS — BY J. R. WILLIAMS

HOW DID YOU DO IT? IT'S ABSOLUTELY IMPOSSIBLE TO DRILL THOSE HOLES WRONG WITH THAT JIG!
HOW COULD YOU? WHY, BRILLIANT BRAINS HAVE FIGURED ALL THAT OUT TO MAKE SUCH MISTAKES IMPOSSIBLE
I'D LIKE TO LIVE TO SEE THINGS WHEN TH' WORLD IS ABSOLUTELY FOOLPROOF
WELL, YOU NEVER WILL, BECAUSE AS TH' FOOL FOOLERS GET MORE BRILLIANT TH' FOOLS GET MORE BRILLIANT, TOO--SO IT MUST GO ON!
J.R.WILLIAMS
T. M. REG. U. S. PAT. OFF.
COPR. 1942 BY NEA SERVICE, INC.
THE BRILLIANT FOOL
11-6

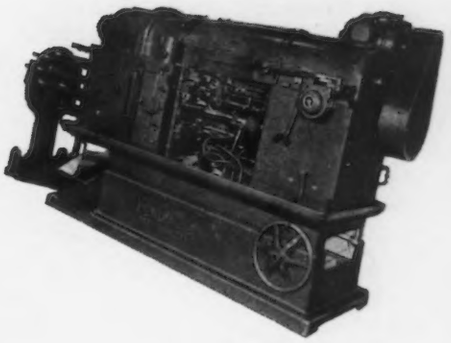
Study Substitutes for Wooden Boxes, WPB Urges

Washington

• • • **Manufacturers** of wooden packing boxes and packers who use them were urged last week by WPB's Containers Branch to investigate thoroughly the possibility of substitute material. The Branch said that a study of the whole wooden container problem now is under way in view of the increasingly serious steel and lumber situation which has been reflected in curtailed supplies of wire, nails and lumber available for wooden boxes.

It was stated that it is very likely that some action will be necessary to reduce the use of lumber for wooden packing boxes for which substitutes are available in order to assure an ample supply of military and Lend-Lease shipments and also to maintain lumber requirements for other essential purposes.

This year packing boxes and crates are requiring 200,000 tons of steel and almost 9,000,000,000 board feet of lumber. Next year, if consumption is not restricted, WPB said, the demand will be even greater.



No pause need refresh them

When time, space and manpower are precious, the tireless performance of fast, dependable multiple spindle automatics is appreciated.

Although machines may not tire, their operators often do. Simplicity and convenience of operation are important factors of a good machine.

The Departmental Design of a Conomatic contributes much to its efficiency and ease of operation. The tooling area, work-head, overhead camshaft, and controls, are in orderly arranged units, conveniently accessible from either side of the machine.

These conveniences contribute to the effective results that good operators are getting from 4, 6 and 8 Spindle Conomatics.

• Prime your production pulse by specifying CONES.

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WEST COAST . .

• Western scrap attains 100-day supply; creates "black market" . . . WMI demise not mourned here . . . Labor situation easing in copper mines; called not serious on Coast.

SAN FRANCISCO — Shipments of steel scrap destined for South San Francisco, Cal., and Seattle, Wash., last week so far exceeded unloading facilities that railroads declared a voluntary embargo on further shipments to those destinations.

At South San Francisco sidings, at one period, 98 cars stood waiting to be unloaded.

The railroad embargo on acceptance of steel scrap shipments marked the high tide of rapidly swelling waves of scrap collections which boosted stocks at Coast mills from a practically dried up condition six months ago to an average now estimated by an authoritative Government source to be a 100 days' supply. This manna comes at a period which it was predicted several months ago would constitute one of the most critical during the entire war effort for Coast open hearths and electric furnaces, prior to the time when expanding pig iron production facilities would ease the basic material situation.

So great is the comparative abundance of steel scrap on the Coast that allocations from this territory to the hard pressed mid-west are increasing. Last week, some 7000 tons from the Pacific Northwest and 1000 tons from California were allocated for shipment to the Chicago district. Further allocations to mid-west mills are understood to be pending. Differing directly from the abundance of steel scrap is the extremely tight condition prevailing in cast iron scrap supply. With substantial increases in prospect for Coast foundry capacity, this situation has every likelihood of getting worse before improvement sets in.

The wide variety of salvage material unearthed by the general scrap drive has been instrumental in slowing down sorting and preparation with the limited facilities available. Among countless items of former utility appearing in various small mountains of scrap material at Seattle are several large, antiquated mounted cannon, tools, fire engines of the hand-pumping variety, several Cavalry swords, old German helmets, and countless old range boilers.

REVISION of OPA's price regulations permitting inclusion of galvanized material meeting size specifications in the No. 2 heavy melting grade, as well as uncut bumpers, rear ends, and front axles of passenger automobiles has contributed substantially to increasing the quantities of this type of material flowing to the scrap yards. Revision of the specifications on the automotive items was particularly welcomed in California where automotive scrap constitutes a large proportion of scrap supplies. Probably the largest item in weight and quantity deriving from the residential scrap drive was galvanized hot water boilers, with total collections of this item alone on the Coast estimated to be close to 20,000 tons.

Shackling of War Materials, Inc., Metal Reserves Corp. subsidiary organized to handle high cost salvage projects, was not greeted with the same universal mourning on the West Coast as seemed apparent on the Eastern Seaboard. Pacific Coast activities of WMI, during its short period of potency, were chiefly conspicuous by their absence. Particularly failure of the organization to follow through on two large street railway rail removal projects lined up by the War Production Board's special projects section. Despite WMI's high hat attitude toward mainland projects, two investigators were reported to have been sent by air to inspect the already combed-over Hawaiian Islands. Negligence of WMI to sell the Coast on its high powered program extended even to failure to carry to the local press the high powered publicity program which bowled over eastern publications even through the death notice stage.

Now that the ethereal Superman of the scrap-salvage program is safely within bounds, it has concluded a deal initiated by the WPB special projects section for ripping up 10,000 tons of rail from Seattle city streets to be bought at an agreed price of $60 per gross ton f.o.b. cars, and a similar project for 25,000 tons of rail from Los Angeles has a good chance of getting underway. Other high cost projects developed by the special projects division of WPB on the Coast involve scrap ranging in cost from slightly above ceiling value up to $100 and $150 a ton. Under the new working agreement WMI will absorb excess cost so that scrap may move into trade channels at ceiling prices. Total tonnage of high cost scrap available on the Coast is estimated at 300,000 or 400,000 tons.

The battleship Oregon, which sailed around the Horn to make history in the Spanish-American War and which has been moored at Portland as a marine museum, is to be turned over by the Navy for scrap on Dec. 7.

ALONG with the encouraging news of the scrap market are indications that this field is providing a scene of operations for "black market" dealing on a two-bit scale. Indications were apparent last week that some usable salvage plate from Navy and Maritime Commission shipyards, theoretically destined for the steel mills, was finding its way to small machine shops unable to secure allocation of plate through normal channels. The racket is supposed to work like this: The Navy and Maritime Commission, generous in their considerations of what constitutes scrap, send to the scrap yards for preparation large scraps of steel plate with the provision that the prepared material be directed to specified mills.

The material which is shipped to the mills, however, contains scrap material which has been substituted for that received from the shipyards. The scrap merchant then sells to the machine shops, without priority but within the price ceiling for steel plate, the sizable pieces of plate filched from shipments sent

And now . . .

Three flags wave over all Ex-Cell-O plants today . . . the Stars and Stripes, as always, the first U. S. Treasury "Bull's-Eye," and now—the coveted Army-Navy "E" . . . each a badge of honor, a medal for distinguished service to the Nation. ★ ★ ★ Exceptional achievement in the production of war materials early earned Ex-Cell-O the "E" pennant (for instance, every plane made in the United States, no matter where its ultimate destination, has precision parts made on Ex-Cell-O machines). ★ ★ ★ The "Bull's-Eye" flag signifies that Ex-Cell-O was the first firm in the United States where more than ninety per cent of the employees agreed to put ten per cent or more of their pay into War Bonds. ★ ★ ★ Flying proudly alongside Old Glory, these two pennants proclaim the unified determination of Ex-Cell-O's many thousands of workers and the management . . . to promise solemnly to America's gallant fighting sons that, as it always has, so Ex-Cell-O always will, back them up with everything it's got!

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EX-CELL-O MANUFACTURES PRECISION THREAD GRINDING, BORING AND LAPPING MACHINES, TOOL GRINDERS, HYDRAULIC POWER UNITS, GRINDING SPINDLES, BROACHES, CUTTING TOOLS, DIESEL FUEL INJECTION EQUIPMENT, R. R. PINS AND BUSHINGS, DRILL JIG BUSHINGS, PRECISION PARTS

them by the shipyards for preparation. From the standpoint of salvage of usable material, the practice is praiseworthy and serves the shipyards right for letting salvageable plate get away from them. The objection lies in this salvageable material being sold to shops not holding a priority. That such a practice could be possible is due partially to four definitions of what constitutes scrap by as many divisions of the War Production Board and a fifth definition by the Office of Price Administration.

Latest paradox in the changing war picture on the Coast is the scarcity of lumber, produced on the Coast in quantity, as compared to steel, not produced here in large tonnages. Most types of steel can be purchased on a lower preference rating than many varieties of lumber whenever stocks are available, and the fragmentary distributors stocks of steel in certain communities constitute a larger source of supply than the absolutely bare lumber yards. An AA-2 rating is the lowest on which substantial amounts of lumber can be delivered in the sections which have felt heaviest building, while an AA-3 is sufficient to obtain bread-and-butter types of steel when warehouse stocks occasionally can be found.

Threatening to add a further burden to lumber production was the taking of bids last week for construction of knocked-down wooden barges by the Maritime Commission. California contractors led the offering with 11 bids and Oregon tied for second with eight bids.

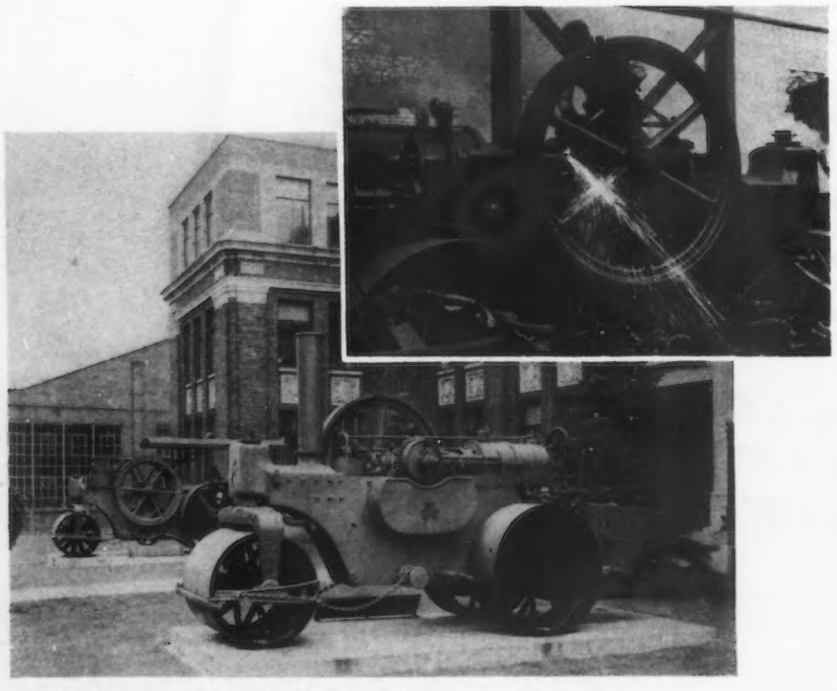
WPB orders issued last week halting construction on seven power and irrigation projects in the far West will effect savings not only of steel, principally reinforcing bars, but of large machinery, cement, and manpower. Cement producing facilities in this area have been under severe strain and stocks on a touch-and-go basis due to the double burden of military construction throughout the Pacific area and the power and irrigation projects. The projects also have required considerable labor, and probably have been a more serious hoarder in this respect than the gold mines whose heads were chopped off a month ago. The projects affected are those whose completion would mean little to the war effort principally because of distant completion date.

Furlough of 4000 experienced miners for work in mines producing copper, molybdenum, zinc and tungsten caught many western mines unprepared to handle large additions to their labor force through the suddenness in which it was issued, but as rapidly as provisions can be made, the mine labor problem should be greatly alleviated. Probably in no other industry can so few men make such a difference in production.

This marks the third consecutive week in which California Shipbuilding Corp., Los Angeles harbor, has carried out a regular time table for delivery of complete Liberty ships to the Maritime Commission. Under the schedule a ship is delivered on each of the assigned days every week with as much regularity as the Monday-Wednesday-Friday history class at Stanford University. The company believes it is the first in the country to put deliveries on a regular schedule.

PATRIOTISM vs. SENTIMENT: Patriotism won over sentiment when the Austin-Western Road Machinery Co., Aurora, Ill., decided to consign these old rollers to the nation's scrap pile. In the foreground (with the shamrock) is an old roller from Ireland. Two other rollers, believed to be the first made in America, were also contributed. INSET — The cutting torch goes to work on one of the rollers cutting it into charging box size scrap.

Photo courtesy of Inland Steel

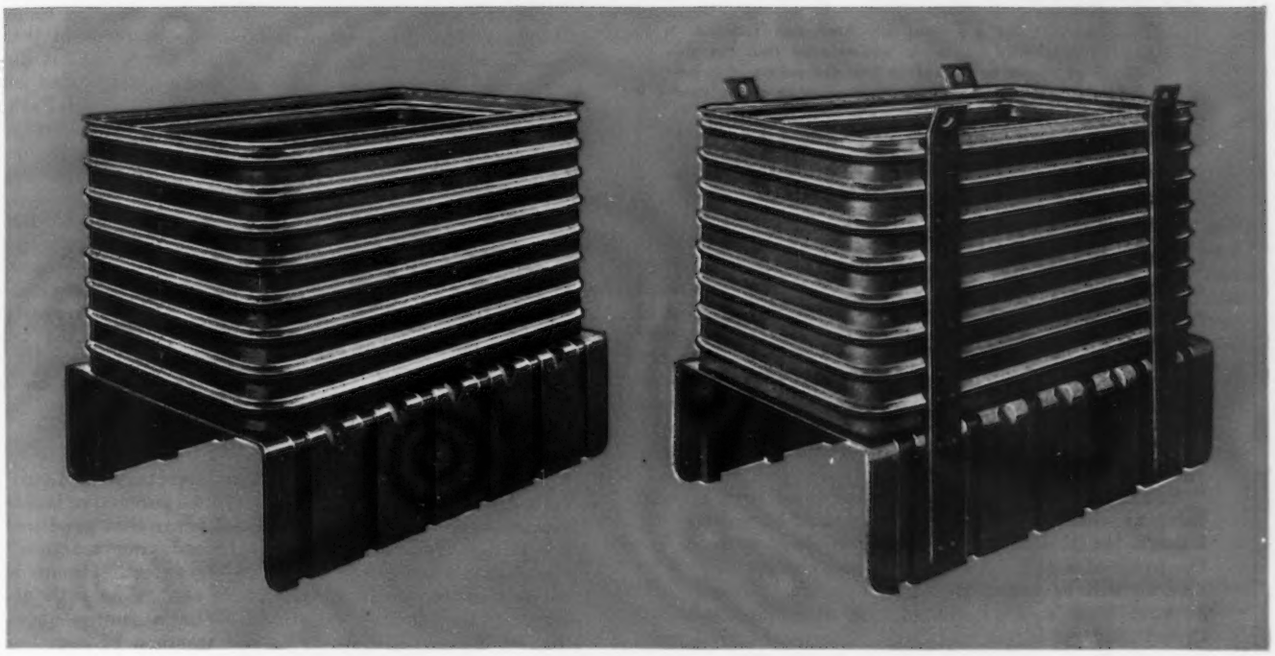


DESPITE wide publicity given California as a critical labor supply area, at least one Federal manhour expert, in intimate touch with the war labor program, expresses the belief that there is no actual labor shortage in California, but that there is only a shortage of properly trained workers in some fields. He declares that the shipyards have no difficulty in recruiting employees in sufficient numbers, and that many who have received training, including women, have not yet been employed. He feels that there is by no means a maximum utilization of available labor and that in many fields there are more workers than necessary. Because the need for training labor became evident on the Coast earlier in the war program than in other parts of the country, training schedules are on a more settled basis than elsewhere, this official states.

The Pacific Coast petroleum industry, not many moons ago the principal customer of the steel mills, today is practically at a purchasing standstill, with no drilling being done. Mills formerly specializing in sales to this industry are maintaining heavy shipments to the Coast, however, in other fields, principally shipbuilding and aircraft.

A New Word to Add to Your Industrial Dictionary

TRUSCONVEY



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More efficient storage of parts and materials, at strategic points throughout your plant!

More efficient movement and delivery of this material to production lines!

You secure these cost-reducing advantages when you use Truscon Steel Boxes and Skid Platforms to TRUS*CONVEY* anything that involves moving operations in your plant. These sturdy, long-lasting Truscon units are designed to meet the particular requirements of each individual material handling job. They can solve a wide variety of handling problems, simplifying operations, speeding production, encouraging profits.

Learn to say TRUS*CONVEY*—learn the many benefits you will receive from Truscon Steel Boxes and Skid Platforms—let us study handling conditions in your plant and make well-planned recommendations without obligation. Write us today.

Investigate TRUSCON Foundry Flasks

Light weight . . . durability . . . strength where strength is needed . . . easily rammed and shaken out . . . these are features of economy and production you get in TRUSCON foundry flasks.

Write for descriptive literature on complete line.

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YOU'LL FIND IT WILL PAY TO TRUSCONVEY YOUR PLANT MATERIALS

Fatigue Cracks BY A. H. DIX

Pork Chops vs. Scrambled Eggs

• • • Rattling around in our cerebrum, like a casting in a tumbling barrel, is a pearl dropped several months ago by your Washington mentor, Leon Wesley Moffett. As it refuses to dissolve, we are airing it here in the hope that exposure before this page's loyal army of eighteen readers will hasten its dissolution, so it will stop rubbing holes in our cortex. This is it:

> These economists say that all American business is organized so tightly and is so interrelated that the sale of a loaf of bread in California and the soling of a pair of shoes in Maine are important impingements on every other daily transaction.
>
> This is called the 'molecular theory' which is illustrated by the example of the stone dropped in a stream which causes ever-widening ripples and eventually agitates every molecule or drop of water in the world.

The thought is awesome, and even though it may be true, we believe that the sooner it is forgotten, the better. For universal contemplation of it is certain to make psychopaths of us all. If you think overlong about the economic consequences of ordering a brace of porkchops instead of scrambled eggs for lunch, your gastric juice carburetor stops working. Overmuch worry about the repercussions on Warner Brothers of your decision to stay home and listen to Fibber McGee last Tuesday night instead of going to see Errol Flynn in "Desperate Journey" blunts the needle that knits the ravelled sleeve of care.

You can drain your mental batteries on such a small thing as whether or not to buy a pack of cigarettes. "If I don't, the Federal government will be poorer by 6c., the price of a set of tent pegs; the acreage planted to tobacco will be reduced; North Carolina's income will be cut; Duke's '43 backfield may be weakened; my throat may get better and Dr. Epiglottis may not have money enough to send his daughter to finishing school. I'll take Camels."

Obviously the ratiocinative rheostat should be turned to full position only when the job in hand is worthy of top voltage. And even then the indicator should not be permitted to linger long in the 12 o'clock position lest, to coin another expression, the project become sicklied o'er with the pale cast of thought.

This is our great thought for the week. It is not yet thoroughly baked, but we would like to get it into the record before it stales.

He Put in His Thumb . . .

• • • Every year, just for the hell of it, we read through the Campbell Memorial Lecture. The drag-out is infinitesimal, and the pleasure, if any, is masochistic, but we do get a snobbish satisfaction out of a vicarious moment with the industry's best minds.

This year, however, there is something extra. On page 55 of the Oct. 22 issue we find the following plum. The current Campbell Memorialist, Professor John (M.I.T.) Chipman, pulled it out of a freshman chemistry examination paper:

> The absolute zero is the place where all the molecules lie down and cease to wiggle.

Weather Report

• • • Which reminds us to report that we have an authoritative opinion on how cold twice as cold as zero is. Weeks ago L. W. (Security Mfg. Co.) Millis wrote that the answer is 229.7 deg. below Fahrenheit zero, which we relayed to you with a maybe-so-maybe-not implication.

But now we find that William H. Wenstrom, a meteorological authority, states on page 427 of his "Weather and the Ocean of Air," ". . . 'twice as cold as zero' Fahrenheit equals 230 deg. below zero Fahrenheit." That settles it for us, and we apologize to Mr. Millis for weaseling.

Paper Souffle, with Ink Sauce

• • • While we are at it we will eat another crow. On Oct. 22 we published a letter from F. T. Warren, of Baldwin's Ltd., London, commenting on the use of "neither" with "or" on page 57 of the July 23 issue. We said that this combination did not appear on that page, and that if Mr. Warren could prove that it did we would eat the page at high noon while seated on the lap of Horace Greeley's statue in City Hall Park. An anonym sends the page to us with the injunction, "Start chewin'," for the words do appear there, in the sentence, "The result is a strip with neither crown or camber."

Our most grovelling apologies to Mr. Warren. But even though we read the page three times before sticking our neck out, we are not surprised that we overlooked the words, as we have had mountains of previous evidence that the ability to read proof properly was not in the genes our ancestors bequeathed us. (Note to Jimmy Wallace of the printing department: Do you think you could pull a proof of the page on a thin sheet of matzoth?)

It Laid an Egg in Louisville

• • • And somebody's anonymous secretary in Louisville, Ky., chides us for running in two successive issues a squib based on the typographical error that produced the phrase "manufacturers of tract-laying tractors." She said it wasn't even funny the first time. Humor is not susceptible to analysis. There can be no satisfactory answer to the question, "What's funny about that?" But we still think it was worth a 20 deg. lip-corner inclination.

We would give 40 degrees to a typo we saw the other day in the *Paterson Morning Call.* A trustee in the county jail was asked about the food. He answered, "The grub is all right, but I get sick of washing widows."

Dark White

• • • I find this on page 53 of your Oct. 15 issue:

. . . a typical factory with white ceiling and sidewalls . . . was chosen. In successive steps, the ceiling was painted a lighter color . . .

What paint is lighter than white?

—*Byron E. Dunlap, Mapes & Sprowl Steel Co., Union, N. J.*

See Pater's *Marius the Epicurean:* "White things are an afterthought—the doubles, or seconds, of real things, and themselves but half-real, half-material—the white queen, the white witch, the white mass . . ." —the white factory ceiling that was painted a lighter color. It is probably only a dream.

Aptronym

The chief engineer of the City of Pasadena Water Department is C. W. Sopp.

—*A Reader, Burbank, Cal.*

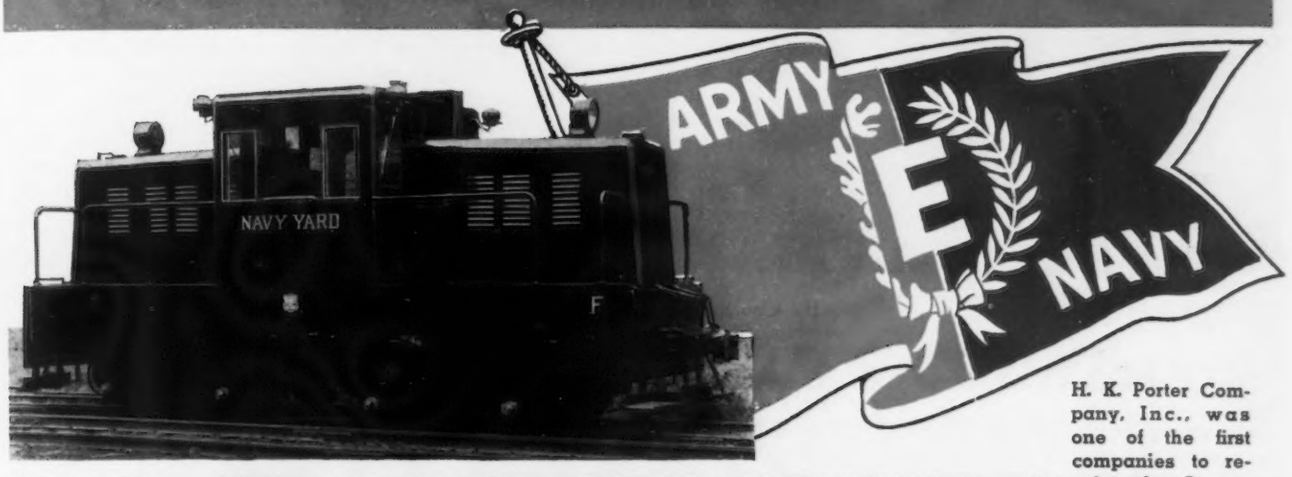
Puzzles

Last week's dog catches the rabbit, according to Lt. Com. A. R. Simpson, in 2½ minutes.

If you can get this one in eight minutes move up to the front row. Alex M. Charlton, of the Puget Sound Navy Yard, sent it in:

> *John, Julian and Jacob, with their wives, May, Maude and Martha, went to the market to purchase pigs. Each paid as many dollars per pig as the number of pigs purchased and each husband spent $63 more than his wife. John bought one less pig than Mary, and Maude bought 19 pigs more than Julian. Who was married to whom?*

Serving the ARMY and NAVY as well as INDUSTRIAL PLANTS

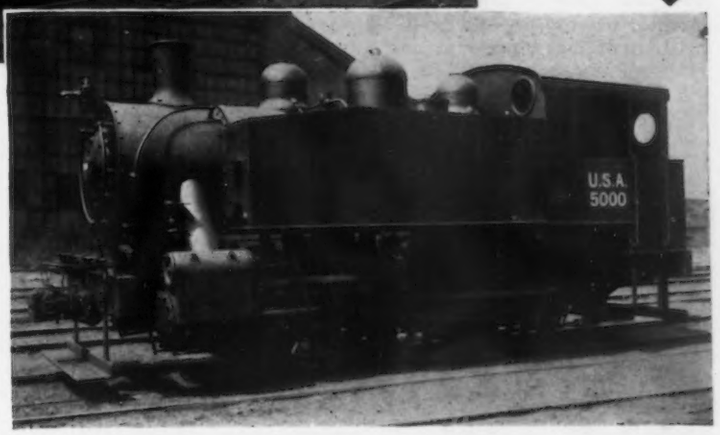


A typical 50-ton Diesel Electric for Navy Yards.

H. K. Porter Company, Inc., was one of the first companies to receive the Army-Navy Award for high achievement in production.

One of the many Diesel Electric Locomotives supplied to the U. S. Army. Illustration shows one of 65 tons.

A 50-ton Porter Steam Locomotive designed for the U. S. Army.



H. K. Porter Company, Inc., has been building locomotives for more than 75 years. Men who know locomotive efficiency have always respected Porter engineering skill and Porter construction methods — they know that Porter locomotives move MORE tons at LESS cost.

Our fighting forces are using Porter locomotives for all types of haulage. If you are about to make the capital investment necessary in purchasing a switching locomotive let Porter engineers recommend type and size best suited to your specific needs.

Only PORTER Builds a Complete Line of Locomotives for Industry

H. K. PORTER COMPANY, INC.

PITTSBURGH PENNSYLVANIA

Dear Editor:

DOG WATCH

Sir:

A small machine shop, which was started two years ago in a tough section of Boston, was broken into and robbed five times in the first two months. Since then, a big dog has been locked up in the shop every night, and no further burglaries have occurred.

Nowadays, a good burglary might put a small shop out of business.

Dogs are not subject to either priorities or the draft.

ALFRED W. MILLER
E. C. Van Dyke & Co.,
New York City

USED PIPE DIES

Sir:

We are under the impression that there are some eastern concerns who deal in and recondition used pipe dies or chasers for various makes of die heads on pipe machines. Do you know of any?

A. L. KORNFELD
Central Pipe & Supply Co.,
Lubbock, Texas

• Try the Landau Pipe Tool Co., 217 Center St., New York City.—Ed.

SCRAP JAM

Sir:

Much of the scrap contributed in the scrap drive in this part of Oklahoma is of extremely poor grade and will require a tremendous amount of labor and time to separate and prepare for use by the steel mills. I can look out of my window at one scrap pile and there I notice many old sheets, empty barrels and containers of different kinds, all of which will have to be prepared in some manner to load in a car to ship either to Tulsa or Oklahoma City for pressing before it can be accepted by the mills. Present freight tariffs make it necessary that a minimum of 40,000 lb. of this class of material be loaded and I seriously doubt, with the equipment available to local dealers, if 25,000 lb. of this class of material can be loaded in the average gondola. It is bulky but of little weight.

I have recently talked with the three firms buying scrap in our city about the labor situation. One man has had one truck shut down for ten days or more because of inability to get a qualified truck driver. This man told me also he had a great deal of difficulty in persuading our tire rationing board to release some new tires to him or even to allow him retreads to keep his equipment moving, and this man I know has been working ten or twelve hours a day to get the scrap moved.

His rate of shipment in 1941 he states was about four cars a month. Since Pearl Harbor he has stepped up his shipments to better than ten cars a month and recently was awarded a certificate of merit by the War Production Board for his good work. He finds it extremely difficult to get competent help in his yards at the rates he can afford to pay for common labor, and his men are drifting away to defense projects. After all, there is a limit to what common labor can be paid and a junk dealer can't compete with projects financed by the Government when it comes to payrolls.

He also mentioned the difficulty of getting rid of his non-ferrous metals. He has a warehouse jammed full of old copper, brass, aluminum, scrap lead, etc., and states that the big buyers just aren't buying. It seems queer to me that with the need for brass, copper and lead for use in the ammunition industry that the Metal Reserves Corporation does not interest itself in this situation and make it possible for the dealers to ship this class of material if the smelters and refiners find themselves unable to buy it due to the fact that their warehouses are also jammed with it.

P. L. J.
Bartlesville, Oklahoma

HOME-MADE WELDING RODS

Sir:

We have a large quantity of .140 diameter copper-coated bessemer rod in 5 ft. lengths.

We would like to use it for electric welding wire if it is practical to do so. Can you tell us the chemical mixture of the flux to dip this wire in?

We have read this procedure sometime ago in a popular magazine and it was very simple, but we lost the copy.

JOHN J. CURRAN
Curran Machine Works,
Long Island City

• In general it is not good practice to use copper-coated bessemer rod for arc welding work. The reason is that the usual types of welding rods are made of cold drawn wire that has been considerably work-hardened. This aids in getting the proper penetration in the weld. Your best bet would be to use this wire as a gas welding rod, using borax as a flux. —Ed.

PRIORITIES GUIDE

Sir:

I would appreciate your sending me two copies of the latest Priorities Guide. It has proved very helpful to us in our work.

JUSTON O. SHORE
United States Navy Yard,
Materials Section,
Brooklyn, N. Y.

PICKLE LIQUOR

Sir:

I saw a newspaper item about "killed" pickle liquor being used in the manufacture of building materials. Do you know anything about this?

D. C. FADDIS
Brooklyn, N. Y.

• Several years ago the Sharon Steel Co., Sharon, Pa., arranged to sell its pickle liquor to the Allied Development Co., Cleveland, which used it in making a porous building brick tradenamed "Ferron."—Ed.

TIN CAN MAGNET

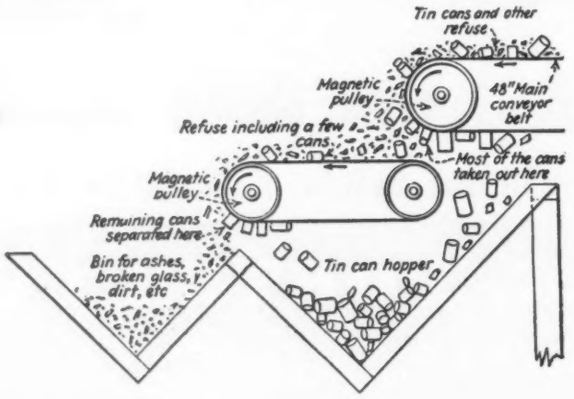
Sir:

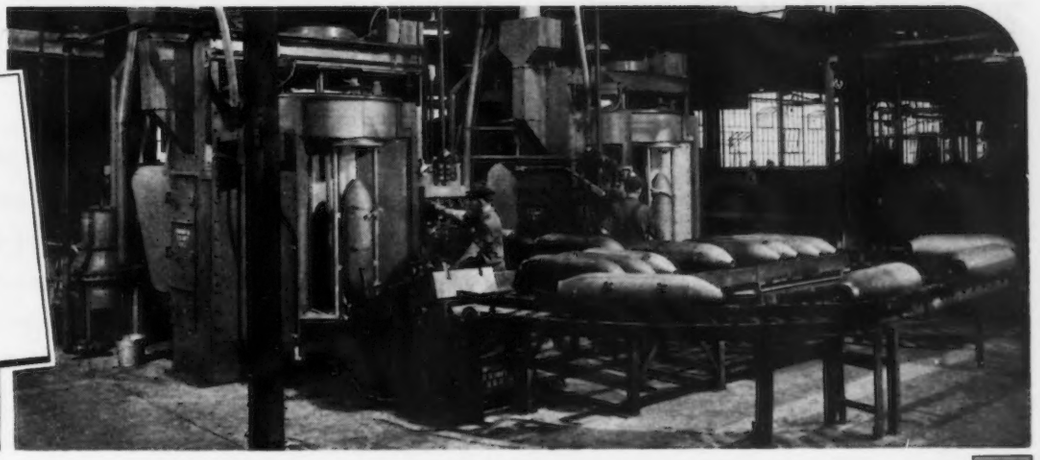
In the June 2, 1927 issue of THE IRON AGE, page 1595, an article was published describing a magnetic pulley to remove tin cans from noncombustible rubbish.

It seems to me that if you will reprint the sketch illustrating this arrangement some of our municipalities might give a little thought to the easy method of removing tin scrap already lodged in the heaps of rubbish.

F. F. FOSS
Wheeling, W. Va.

• The sketch appears below. The article that accompanied it stated that it was installed by a by-product company to which Los Angeles sold its non-combustible domestic rubbish. Reclaimed materials average about 600 ton of tin cans and 175 tons of miscellaueous metals.—Ed.


Tin cans and other refuse
Magnetic pulley
48" Main conveyor belt
Refuse including a few cans
Most of the cans taken out here
Magnetic pulley
Remaining cans separated here
Bin for ashes, broken glass, dirt, etc
Tin can hopper



Cleaning 500 lb. bombs in two WHEELABRATOR Special Cabinets in the plant of a prominent midwestern manufacturer.

TODAY--*WHEN MINUTES COUNT*--
WHEELABRATOR SAVES HOURS

THE WHEELABRATOR is cleaning work today at speeds that were undreamed of in the era preceding the invention and development of airless blasting by *AMERICAN* a decade ago. The dress rehearsal for WHEELABRATOR'S sterling war-time performance was staged in time of peace, when hundreds of users learned by experience that they couldn't do without it. These and many more new users are finding the WHEELABRATOR even more indispensable today in keeping the production of war materials flowing smoothly and quickly through their plants.

WHEELABRATOR SLASHES CLEANING TIME 66 2/3%

"Since the installation of your 48" x 48" WHEELABRATOR Tumblast our actual operating time has been cut to 2½ to 3 hours, with ***better*** and ***more consistent*** looking castings, and our time of the sand blast room has been cut from 24 hours to 8 hours."—The Hartford Electric Steel Co.

CHALK UP ANOTHER RECORD

". . . Prior to the installation of the WHEELABRATOR Tumblast, we had been operating nine tumbling mills and one sand blasting cabinet continuously 24 hours a day and then we were never caught up in our cleaning. We are now able to have an entire day's production of castings cleaned within about seven hours."—Birdsboro Casting Co., Inc.

TRADE MARK
THE AMERICAN MOLDER
REG. U. S. PAT. OFF.

AMERICAN
FOUNDRY EQUIPMENT CO.

Blast Cleaning and Dust Control Engineers

510 SOUTH BYRKIT STREET • MISHAWAKA, INDIANA

This Industrial Week . . .

- ***New Controlled Materials Plan Announced***
- ***System Effective for Second Quarter of 1943***
- ***Steel, Copper, Aluminum Distribution Controlled***
- ***Manpower Difficulties Seen Steadily Growing***
- ***Machine Tool Plants Fear Eventual Lack of Steel***

U. S. INDUSTRY this week had been handed the long-awaited new system for material distribution which eventually is expected to sweep away the headaches of priorities and provide greater momentum toward winning the war.

The new system is called the "Controlled Materials Plan," as forecast in these pages last week, and will become effective for the second quarter of 1943.

It calls for control over distribution of steel, copper and aluminum which later may be applied to other war materials. It abolishes preference ratings, but not until June 30, 1943. In general it represents a compromise of many points of view as to how these important war materials should be rationed to give the U. S. war machine maximum power.

Under CMP's provisions, bills of material for specific end products will be submitted by prime contractors to the Army, Navy, Lend-Lease Administration, Maritime Commission and the Board of Economic Warfare. From these bills the armed services and other claimant agencies will submit material requirements for the controlled materials to the WPB Requirements Committee. The Requirements Committee will certify to the claimant agencies allotments of material for direct military purposes.

For more complete details on the Controlled Materials Plan, see Page 141.

Prime contractors will apply to the claimant agencies for direct military allotments of controlled materials and to WPB for all others.

Prime contractors will authorize the requests for materials for sub-contractors, limited as to quantity and as to period of consumption, exactly as they received their authorization from the claimant agency.

OTHER highlights of the new Controlled Materials Plan, for which industry will have plenty of time for analysis since its effective date is almost five months away, are:

1. No preference ratings will apply to controlled materials after June 30, 1943 both allotment numbers under the plan and preference ratings under PRP will be in effect.

2. Preference ratings will continue to apply to fabricated products and not steel products as defined in the plan. (Fabricated products are any products not included in the list of steel products.)

3. During the second quarter of 1943, at the mill level, allotment numbers will govern schedules to the extent granted to the mill and any steel above that taken up by allotment numbers will be controlled by preference ratings.

Announcement of CMP followed months of speculation as to its outlines. For as long as nine months, steel, automotive and WPB men had been working on a new distribution plan which at first was intended to apply only to steel.

Difficulties of material distribution unavoidably will continue for many months, possibly to the end of the war, because of quick unpredictable shifts of emphasis from one weapon to another and sudden changes in specifications which must accompany constant efforts to win and maintain quantitative and qualitative superiority over the Axis in planes, ships, tanks and guns.

SOME WPB officials are concerned this week lest the steel distribution allotments for the fourth quarter will be ineffective (a situation which is not affected by the new CMP). Claims that some steel companies are misdirecting their customers in regard to adjustments of fourth quarter material allotments under the Production Requirements Plan have been made by the WPB. This misdirection is said to involve recommendations that steel buyers disregard paragraph "J" in Priorities Regulation No. 11 which relates to downrating of outstanding orders.

Most steel mills have AA-1 orders scheduled far in advance. According to revisions made in PRP on Oct. 3, all steel orders outstanding must be rerated in accordance with the new fourth quarter rating assigned to buyers within five days after such a rating is received. Many now outstanding AA-1 orders should be changed promptly and mill schedules revised to conform.

At Cleveland, Frank M. Aldridge, Cleveland Regional Compliance Chief, warned that in advising buyers to ignore the above revision in PRP, the steel companies will find that as a result they will be collecting rubber checks instead of bonafide priority ratings. "The only ratings that are legal during this (fourth) quarter are those which manufacturers received on the PRP certification," according to Mr. Aldridge. "Acceptance of other ratings will seriously hamper the mills' own operations," he warned.

FOR some time General Hershey and his aides have been questioning industrialists throughout the country for their viewpoints on the manpower problem. The principal questions they are said to be asking are: "Do you think the entire manpower program (including the armed service and war plants) should be centralized under one head at Washington, and do you believe the selective service system should be changed?

Comments received by THE IRON AGE in the last few

weeks from companies participating in a cross section survey on manpower problems suggest that various sections of industry do not yet see eye to eye on all phases of the complex and vexing manpower problem. One company filled in THE IRON AGE questionnaire (for results of the manpower poll see page 77 in the Oct. 29 issue of this magazine) wrote:

"Our chief trouble is trying to get definite policy decisions from draft boards. Some boards take away men who are key men from our organization. Others defer men who are relatively unimportant. We want to cooperate by letting our less important men go, but we also would like cooperation from draft boards for the retention of key men." Another company said:

"Draft boards are not well enough informed in many cases to wisely judge deferment requests. They vary widely in judgment from board to board." Still another philosophically commented: "Our boards here are getting tougher, which probably is to be expected."

Another wrote:

"The draft boards are removing our highest skilled men and are leaving us a third and fourth rate type. In our section, particularly, arbitrary action by local boards is interfering with AA and AA-2X war production orders."

SOME industrialists believe that on the whole the draft boards are doing a good job and are taking into account all the factors which should determine whether a man can do a better job for his country manufacturing weapons or using them against the enemy. A Michigan plant informs THE IRON AGE that "Michigan laws are such that it is almost impossible to employ women in foundries." Another Mid-West employer views sourly the morale of his employees and says:

"If the men now employed could wake up and realize that we are at war, and put their shoulders to the wheel, we wouldn't have to employ women in our factories."

Effort to prevent labor pirating have not been uniformly successful. One plant manager complains that his biggest problem is not poorly-operated draft boards but the "pirating of highly skilled tool makers and mechanics by Detroit tool jobbing shops."

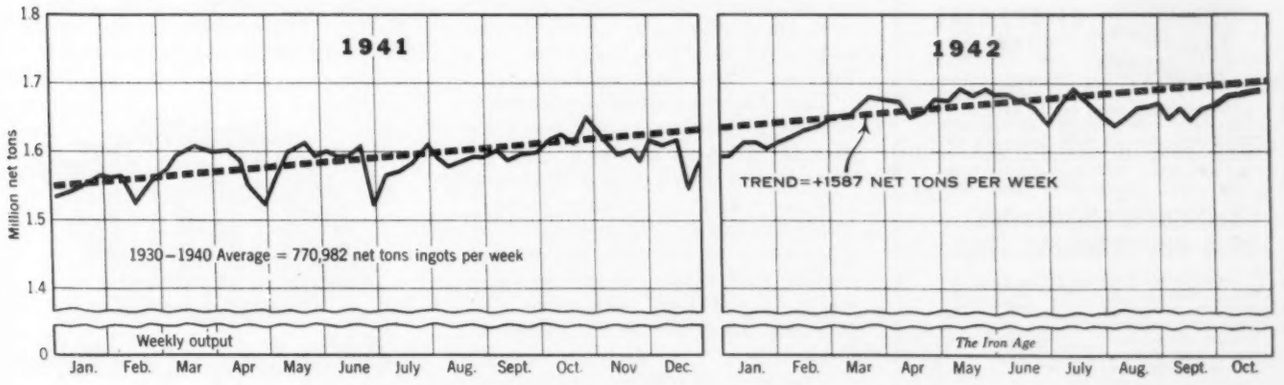
With the curtain of censorship being drawn more tightly over production figures, the progress of war output is growing more difficult to measure. Plane propeller production continues to present a serious problem although enough props have been made to fly all planes so far. Four engined bombers in September were almost on schedule. Tank output, according to WPB Chairman Donald M. Nelson's fourth monthly production reports, was up 3 per cent in September, when tank guns were ahead of schedule. Munition output has been spotty but gained 7 per cent over August while Ordnance output overall rose 7 per cent in September. Twelve major combat vessels were launched in that month while 92 new merchant ships were placed in operation, or 21 more than in the previous top month of July, according to Mr. Nelson.

STEELMAKING in the U. S. dropped slightly to 100 per cent of capacity from the peak of 100.5 per cent maintained for the past two weeks. Eastern District output jumped 10 points to 100.5 per cent while slight increases in production were evident in Wheeling, up two points to 89 per cent, and Cleveland, up a point to 102 per cent. The two major producing centers, Pittsburgh and Chicago, are down half a point each to 101.5 and 102.5 per cent, respectively. Youngstown operations fell two points to 100 per cent. Melting rates in Birmingham and Cincinnati have dropped three points to 95 per cent for the Southern area and 104 per cent for the latter district.

How inland manufacturers are getting into war vessel production is shown in the disclosure by the Navy that Truscon Steel Co. is now fabricating subassemblies for tank landing barges which are being shipped to Eastern yards for assembly. This company is about to begin assembly of fuselages for Navy dive bombers.

Republic Steel Corp. has been running a steel producing race with Japan. On last Thursday, Republic itself passed the 7,200,000-ton mark (last published figure of Japan's annual steel capacity) for the current year.

While the machine tool industry has been assigned high priority ratings and has been promised about 90 per cent of the steel asked for in its fourth quarter under PRP, word from some steel centers suggests that mandatory allocation of steel to the machine tool industry will soon be necessary. No tool plant operations have been reported slowed so far by lack of steel, but the industry is becoming anxious for its steel supplies a few months from now.



Steel Ingot Production by Districts Per Cent of Capacity

Week of	Pittsburgh	Chicago	Youngstown	Philadelphia	Cleveland	Buffalo	Wheeling	South	Detroit	S.Ohio River	West	St. Louis	East	Aggregate
October 29	102.0	103.0	102.0	93.0	101.0	104.5	87.0	98.0	101.5	107.0	102.0	107.5	90.5	100.5
November 5	101.5	102.5	100.0	93.0	102.0	104.5	89.0	95.0	101.5	104.0	102.0	107.5	100.5	100.0

* Revised.

HERE'S SOMETHING TO HELP YOU *Clear the Air*

HANDBOOK OF SPECIAL STEELS

Newly revised and reprinted—a comprehensive book on the properties, uses, and best methods of handling, treatment, etc. of tool, stainless and other alloy steels. Plenty of tables to facilitate quick reference and selection. 128 pages, pocket-sized, latest data.

ELEMENTARY DISCUSSIONS: TOOL AND STAINLESS STEELS

Informative booklets giving clear, detailed data on the various types of tool and stainless steels, their properties and handling. Excellent for training courses in metals and metalworking.

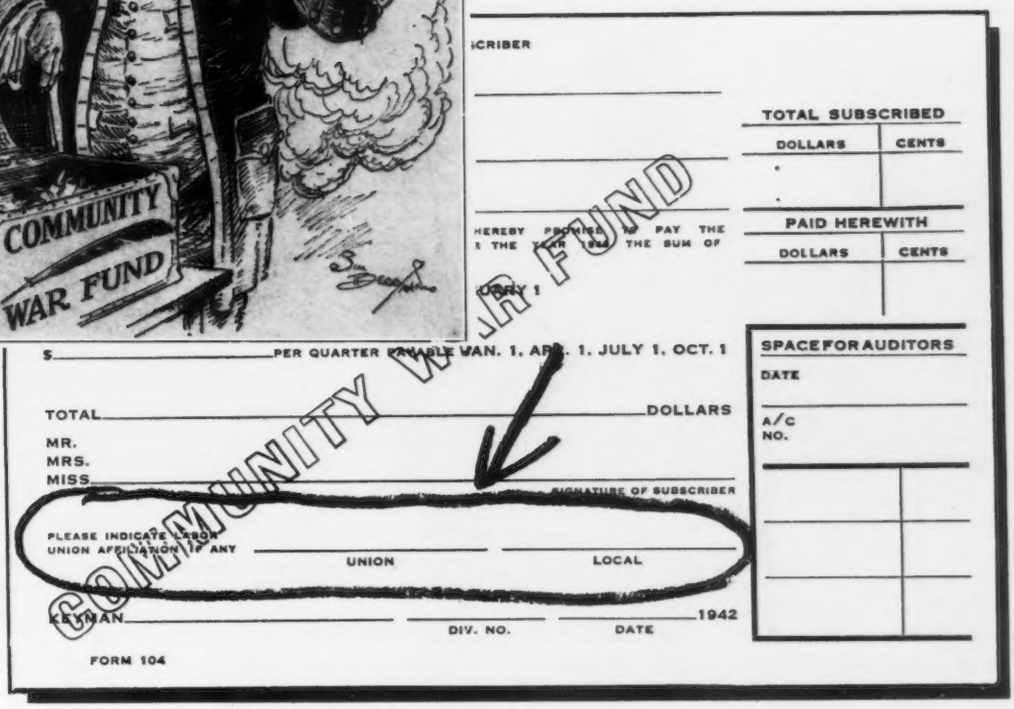
THE lack of information can throw a pretty effective smokescreen around jobs on the production lines. After all, it's about the same as on the firing line—you can't hit them if you can't see them.

Your plant is probably no exception to the general run of war producers. All have a steady job on their hands of training a stream of new men and apprentices in specialized machine operations or other fabricating procedures. Where the needed information concerns alloy steels, you'll find invaluable the publications listed in the panel to the left.

They're primarily for production men. For engineers and designers, complete and certified technical data on the various types of stainless and tool steels is available in Allegheny Ludlum "Blue Sheets." • Write for the information or the personal assistance you need.

Allegheny Ludlum
STEEL CORPORATION
GENERAL OFFICES: PITTSBURGH, PENNSYLVANIA

A-8677 . . . W & D



WHERE'S YOUR CARD?

When Government employees, including many hundreds of businessmen, went to their jobs in Washington offices a few days ago, they were given Community Chest pledge cards (Right) asking them if they belonged to a union. Many were surprised, many embarrassed.

Industrialists at Washington Asked: Are You Union Members?

• • • **Businessmen in Washington** to help direct the nation's efforts to win the war for democracy were being asked this week whether or not they belong to a union.

If they did belong to a union, which seemed unlikely in most cases, they were also asked: "Which local?"

While reasons for this questioning of businessmen (and other hundreds of thousands of government employees) still were unclear at midweek, the query itself was neatly set forth in an unexpected place surprising some of organized labor's closest friends.

On the Community Fund pledge card through which all persons living in Washington are asked to promise to contribute money appears the following two lines: *PLEASE INDICATE LABOR UNION AFFILIATION (IF ANY) ..... WHAT LOCAL?*

Industrialists long accustomed in their home town to digging deep for money for community funds—at the Capital this is called "The Community War Fund of Washington"—have been pondering the last few days on the meaning of this unusual Labor-Community Fund questionnaire.

Usually campaigners for Community Chest funds are looking merely for cash which goes to many worthy causes. In many industrial cities—for example, Cleveland, Ohio, where there is an especially hardfighting organization of Community Chest collectors—the pressure for charity contributions is considerable. At Washington, it's pressure, but it's different.

Businessmen at Washington, and some government employees, have been wondering if the community pledge card can be turned in with the union question unanswered. Some guessed it could. Or, was the government likely to crack down on a contributor who doesn't belong to any union or to the right union? To what use will the figures on union membership in Washington be put?

A spokesman in a Washington Community War Fund office said the labor figures would not be used politically.

Some men from industry at

Washington have been speculating on what Admiral Land, chief of the Maritime Commission, wrote on his community chest pledge card about his union membership.

Persons receiving the pledge cards observed that it contained no questions about church membership, if any, and other subjects. Only about contributions and unions.

While many men in the War and Navy Departments, Maritime Commission and War Production Board who have long been not unwilling targets for charitable organizations, are puzzled about the linking of a labor survey with a community chest drive they still can't forget about Riva.

Riva had been tossing on the hospital bed. "I'm going to die. I know it." Out in the hall, her parents were talking to the doctor. "We can't understand it. Our home was bombed. We were two months on a freighter getting here. She never seemed to mind anything . . . always laughing and cheerful."

Then Riva was sent to a place in the country. Even when the doctors had found out there was nothing physically wrong with her, they didn't want her to go back to the apartment her parents lived in. "When she sees you, she remembers too much," they said. A young woman showed Riva around that first day—the playhouse, the swings and slides and merry-go-round. Just looking at the merry-go-round made Riva shiver. "I'd never ride on that," she said, "You can't make me." She started to cry.

Riva rarely talked to other children, never played with them till one day near Hallowe'en. The art teacher asked her to draw a pumpkin. Riva drew the pumpkin. "First one on the merry-go-round," a playmate yelled and they all darted away. The little boy who had watched, wide-eyed, as Riva's pencil drew the jack-o-lantern, turned back. "Come, Riva," he tugged her hand.

Riva hesitated. Then "I . . . I . . . all right. They ran toward it together. The little boy swung on. As the merry-go-round circled, Riva stumbled, missed her step. When she was on, clinging awkwardly to the metal shelf, she started to laugh, "It's fun," she cried. Things have changed now. Riva doesn't wake up screaming any more. She's not afraid when the lights go out, not afraid of anything.

To businessmen on war duty in Washington, the story about Riva was just like the community chest stories at home. They read them in the newspapers and then they paid up to help the dozens of participating social agencies trying to make living easier for such unfortunate people.

It was the charity campaign question about whether the contributor is a union member that reminded businessmen that Washington is different.

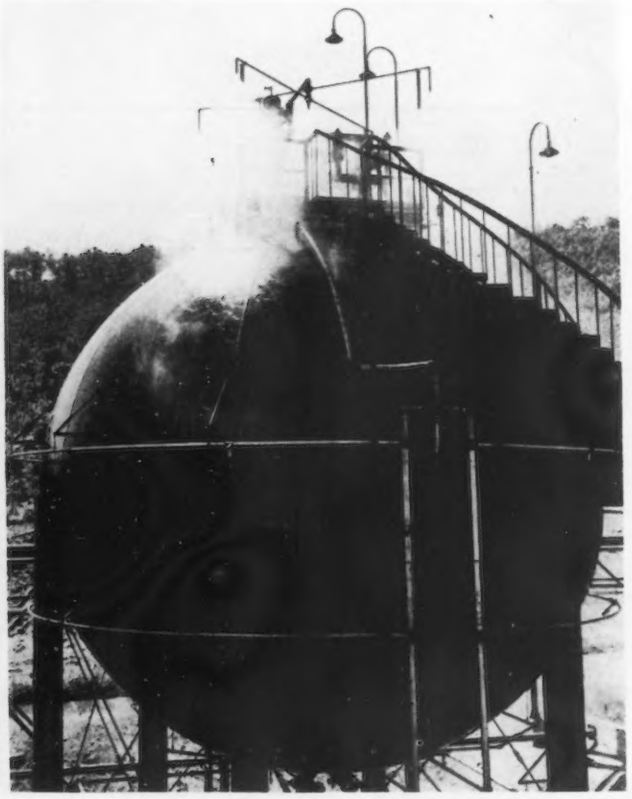


Photo by Acme

BUTADIENE STORAGE TANK: New England's first synthetic rubber plant contains this large butadiene storage tank, shown here enveloped in a water spray to prevent premature polymerization. U. S. Rubber Co. will make synthetic rubber near the little Connecticut shop where the world's first vulcanized products were manufactured 100 years ago.

Wide-World Photo

MAN THE TANKS? Hardly to be passed-off as a snapshot of a production operation, this posed picture of English women, members of the Auxiliary Territorial Service, shows them assembling a "Churchill" tank at a depot of the Royal Army Ordnance Corps. English women have taken over many jobs which have not been seriously considered for women in this country.

Post-War Achievements Sighted in Machine Tools

Bridgeport, Conn.

• • • **The machine tool** industry, after the war, will find its markets through new progress in machine design, through rehabilitation work in Axis nations as well as in the United Nations, and in the fact that "we are heading for a socialized world" when the United States "must bring to the rest of the world the benefits of the social and economic life which we live."

That is the opinion of E. Payson Blanchard, sales manager of The Bullard Co. Mr. Blanchard's beliefs were expressed before a gathering of business men from area of the city.

Mr. Blanchard told the business men that the machine tool industry "is looking forward to new achievements that will keep us from the depths of the industrial declines that we have experienced in the past.

"The machine tool business, which is either on the crest of the wave or in depths of the trough, experienced after the last war its halcyon days of 1918 and 1919 with the depression in '21 and '22. Then came the "Glory Hallelujah" period of 1929, followed by a nose-dive, and what a nose-dive!"

On the surface, Mr. Blanchard said, the machine tool industry would apparently face a similar situation at the close of the present war.

"We will have," he said, "the most magnificent collection of plants ever imagined and now all producing war time needs. That collection of plants can produce peace-time needs to a large extent just as well.

"There are Bullard machines all over the world today, and they are still being shipped to all available territories for war purposes. The market will be glutted. But, it is in the spirit The Bullard Co., as a characteristic of American industry, to seek new achievements, to produce new machines. Progress of this nature is always accentuated and even multiplied, in a war era. I hope and believe that business men will have the courage to scrap equipment which industrial science can prove to be obsolete, and its continued use will be contrary to all of the economic principles on which a solid future must be created."

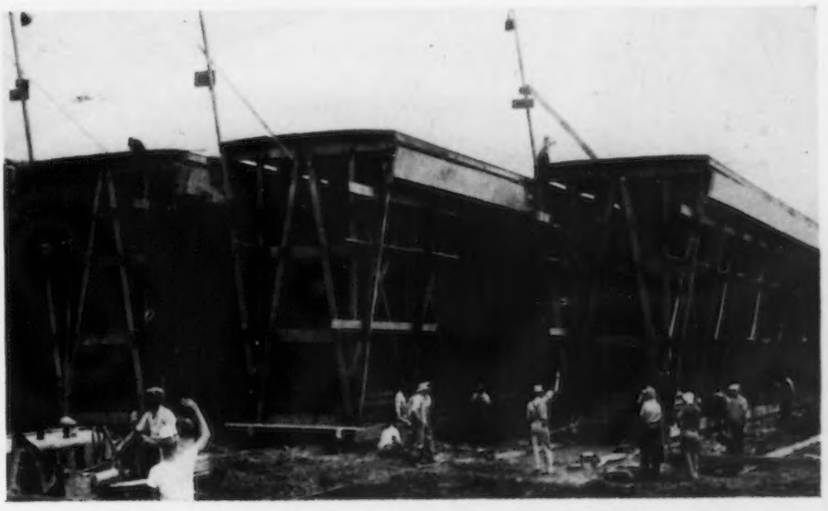
Future markets, Mr. Blanchard believes, lie not only in this country to keep abreast of progress, but also in Russia, in France, England, Italy and in the remaining nations of Europe. Even Germany must be re-equipped with the means to rebuild her industries on a sound foundation, and for constructive peace-time projects.

"We are heading toward a socialized world" he declared, "when the United States must bring to the rest of the world the advantages of the social and economic life we live. We will have to do it as we did after the last war—supply the fundamentals for building a whole and comparable economic entity in each country, because we cannot live in a world where all cannot share in the good things which we ourselves have. We are planning new machines, a new civilization and we have now hopes," Mr. Blanchard said, "and we believe that you can plan with us."

ONLY 3 MOVING PARTS: This H. R. Reising sub-machine gun shown being assembled by George A. Exley at the Harrington & Richardson Arms Co. has only three moving parts, weighs only 6½ lb. and will fire 500 shots per minute. Its simplicity and efficiency are a tribute to the arms industry.

Harris & Ewing, Dick Hanley Photo

NOVEL CONSTRUCTION: The new engine plant of Wright Aeronautical Corp., termed a "warspeed" plant and located "somewhere in New Jersey" is of concrete construction which was poured around movable forms. These huge forms which you see being hauled into position by tractor permitted the pouring of a concrete roof and necessary supporting columns in one operation. After drying, the forms are moved to the next section of building and are ready for use again.



Put the facts in

in a letter to Bryant

We may *think* we have only one problem. That problem of course is war production. To help solve it, Bryant productive capacity, already tripled, is constantly increasing.

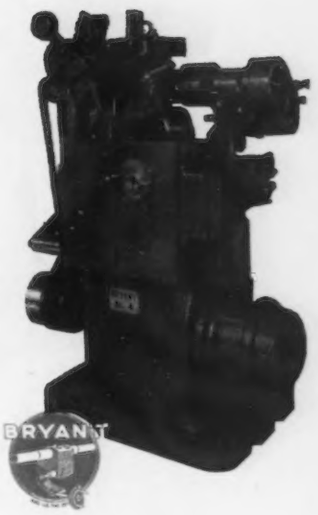
But right now, today, we already have another problem, and that problem is to find new markets for American products, the moment peace returns.

If we are going to solve this problem we must find new ways to make more and better things that more and more people will be glad to buy for less and less money.

If we are going to solve this problem in time, we better start solving it now.

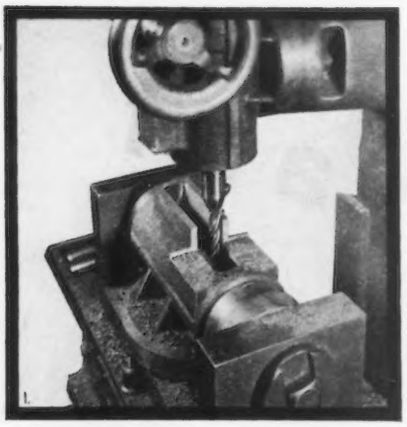
Probably you have already started. If your plans include jobs with internal grinding, it should pay to put the facts in a letter to Bryant. Just as Bryant engineers have found so many ways to combine operations, cut costs and speed war production, so can they be expected to point the way to new profits on your future business.

And all the greater should be Bryant's opportunity to render substantial assistance if allowed to work with you at the earliest possible stages. By all means sit down today and put the facts in a letter to Bryant.

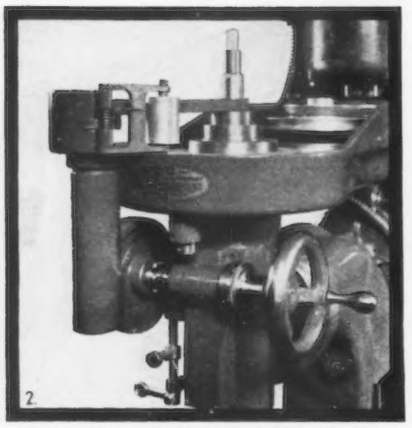


BRYANT CHUCKING GRINDER CO.

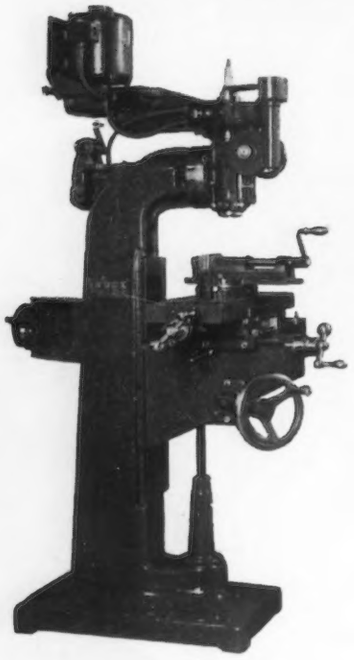
SPRINGFIELD, VERMONT, U. S. A.

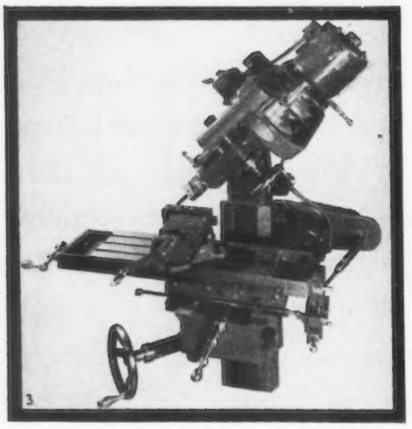


1. Precision end-milling



2. Power drive to spindle quill





3. Head swivels 90° each way

40-H INDEX

Manufactured by

INDEX MACHINE & TOOL COMPANY

A SIMPLE AND PRACTICAL MACHINE FOR APPROXIMATELY $1000.00

That was the original idea of the Index Machine & Tool Company in bringing out the 40-H INDEX.

Rugged and fast for its class. Designed to do end mill work with end mills from 1/8" to 5/8" in tool steel. With a spindle running in super precision pre-loaded ball bearings . . . with verniers for locating . . . with power feed to spindle for boring.

This has now long been an accomplishment, TRIED & PROVEN by hundreds of Defense Plants on parts for all kinds of war equipment from binoculars to battleships.

If you do not know about this machine you should write at once for full particulars from

Sole-Distributors

BLANK & BUXTON MACHINERY COMPANY

3100 E. MICHIGAN AVE. JACKSON, MICHIGAN

40-H INDEX

A Tried and Proven Machine for Milling, Drilling and Boring in the Tool, Die, Experimental and Production Shops

Steel Industry to Enter Total War Phase under Central Plan

Pittsburgh

• • • **When the steel** industry begins to operate under the proposed new plan controlling production and distribution of all products, it will have entered the third or last war phase whereby the United States government, through its agencies, will completely direct what steel is to be made and how it shall be distributed.

The first or peace stage a few years ago saw the steel industry running its own affairs both as to production and distribution. During the second phase, in which essential civilian and war requirements predominated, the manufacture of steel took a pattern dictated by the much discussed priority system.

For the past several months the demand for total war products has been so great that WPB has found it necessary to issue numerous limitation orders rstricting production of even essential civilian products. There have also been numerous cases where less urgent war requirements have been retarded for months because of the urgency in primary or direct war needs, such as tanks, ships, airplanes, guns etc.

It is believed that the WPB has taken drastic action in limiting steel output for certain products in order to make sure that the maximum effort can be concentrated on first line Army Navy, Maritime, and Lend-lease needs. It has been admitted, however, by responsible officials, that at the present time actual and total war requirements in terms of steel products are not accurately or adequately known. If this is true, and there are many who believe it to be true, the installation of the new steel plan which is not expected to be operative before March 1 (but probably later) comes at a time when the need for it is the greatest.

With fighting continuing on seven fronts, it is difficult, if not impossible, to arrive at concise war requirements. However, when the various government agencies check their prime contractors on the question of steel requirements and these are matched against actual production estimates in the steel industry, probably more information on war needs will be available than has been the case at any time since we

entered the war against the Axis.

The complete control over production and distribution of steel products, however, does not necessarily mean that the steel industry will find its problems being solved. Actually it will be found that the steel industry's initiative will be more strongly tested than ever before.

As the war goes into its all-out stage where policies change every day, where accent is on first one type of war material then another,

EAST-BOUND PIPELINE: Here the new 24-in. pipe line, being constructed to carry oil from Texas oil fields to the East, is seen where it crosses the Red River in Arkansas. This was the first river crossing completed in the line. Originally planned to extend only to Illinois, WPB has now authorized an extension which requires an additional 224,000 tons of steel to bring oil through to the Eastern Seaboard. The pipeline to Norris City, Ill., is expected to be completed by December. Petroleum Coordinator Ickes recommended the extension.

Wide-World Photo

"IT'S YOUR MOVE ON THIS SCRAP, BOSS"

Joe: "Every department in this plant has put *something* into this scrap iron collection. But hang it all, everybody held onto a lot of old things. The boys are afraid we'll need 'em sometime."

Boss: "Tell them to use their own judgment, Joe. Our fighting men need steel for guns, tanks and ships, and a lot of other things. We'll get rid of everything we can."

Joe: "Yes, sir, but I see I gotta pin you down. Honest now, Boss, you're the only one who can decide about all this stuff. To put it straight to you, none of us wants to get fired for selling something we should keep. *You* gotta decide."

* * *

He's right, Mr. Manager. You must decide what equipment is obsolete and should be sold. Then call the scrap dealer. America desperately needs the metal from unused or obsolete dies, jigs, equipment and machines. Without it the war *can* be lost.

The men who are fighting our battles can't win with courage alone. Start your scrap flowing—and keep it flowing for the duration! The American Rolling Mill Co., 3271 Curtis St., Middletown, O.

ARMCO

TURN IN ALL YOUR SCRAP

This advertisement is in support of the Salvage Program of the Conservation Division of the War Production Board.

Typical method of handling magnesium castings in a vertical or pit type Cyclone. Aluminum castings handled in the same manner are quenched and aged without removing the work from the fixture.

LINDBERG FURNACES

LINDBERG FURNACES IN THE AIRCRAFT INDUSTRY

ALL THE LEADING AIRCRAFT MANUFACTURERS and subcontractors in the country employ Lindberg Cyclones for the precision heat treatment of aircraft parts. In the heat treatment of aluminum and magnesium alone, the Cyclone is ideally suited because of its heating uniformity and accurate temperature control. The high quality of the tons of heat treated stampings, castings and forgings which are turned out of Cyclones each day, is due to the famous Lindberg 100% forced convection heating principle.

HEATING UNIFORMITY

Uniform heating is the result of great volumes of air being circulated at a two-mile-a-minute velocity through the work chamber so that exactly the same degree of heat is forced to every part of the charge. Under this condition, it is impossible for damaging heat differences to exist. Repeated multiple point pyrometer tests, using 6 or more thermocouples at various points in the work chamber, show a straight line on the temperature recorder.

The Lindberg Input Control governs the input of heat in accordance with the demands of the charge. When little heat is needed, little heat is automatically supplied, thus eliminating disastrous surges in heat supply.

WHAT THIS MEANS TO THE AIRCRAFT INDUSTRY

It means that production is necessarily greater because large, dense loads are heated with an assured uniformity. It means a smooth flow of non-ferrous heat treating production. It means that each piece of vital equipment is not held up because of wasteful rejection, and too, it means that you have one less production problem to worry you in these days of wartime pressure.

Ask about the Cyclone and its possibilities in your own shop. A Lindberg sales engineer will be glad to discuss your problems with you.

These furnaces for the heat treatment of non-ferrous metals have been built in a wide range of sizes, in both vertical and box type designs.

The vertical or pit type Cyclone comes in *80 different standard sizes* of varying diameters and depths. The box type Cyclone is made in *58 different standard sizes.*

Aluminum stampings, on a rack, being charged into a large, box type, Cyclone furnace for solution heat treatment.

A mass load of magnesium castings which are uniformly and accurately heat treated daily in this Cyclone box type furnace.

LINDBERG ENGINEERING COMPANY
2452 WEST HUBBARD STREET • CHICAGO

CYCLONE FOR LOW-COST ACCURATE TEMPERING

SUPER-CYCLONE FOR HARDENING, ANNEALING, NORMALIZING, TEMPERING, NITRIDING

HYDRYZING FOR SCALE-FREE AND DECARB-FREE HARDENING

There's "FIGHTING PUNCH" in Every POUND of Your SCRAP METAL!

DO IT TODAY!

Turn in your Scrap Metal. Every Pound is needed NOW! The production of America's Steel Mills must *not* be— "Too little-Too late."

Turn it in NOW...when it is so sorely needed to—

"KEEP 'EM ROLLING"
"KEEP 'EM FLYING"
"KEEP 'EM WINNING"

Without your scrap and all that others can supply, the Steel Mills of America cannot operate at VICTORY Capacity!

•

"Throw your Scrap into the Fight"

Solid stainless scrap is especially needed.

•

INGERSOLL STEEL & DISC DIVISION
BORG-WARNER CORPORATION
310 So. Michigan Avenue Chicago, Illinois
Plants: Chicago, Ill.; New Castle, Ind.; Kalamazoo, Mich.

"A Borg-Warner Product"

INGACLAD
STAINLESS-CLAD STEEL
AND INGERSOLL SOLID STAINLESS STEEL

and where the time will soon come when heavy replacements of material lost in battle will be necessary, all the niceties of steel scheduling and production could be toppled over within 24 hr. notice. Companies which have finishing facilities for making several products and whose ingot output is tuned to this finishing capacity, may find accent on probably 60 per cent of the finished products made, with drastic restrictions against the balance. Under ordinary conditions, this would call for a reduction in steel ingot output so as to efficiently meet the requirements of those finishing mills which have the greatest demand. During the present war time, however, it is unthinkable that the government would direct any reduction in steel ingot output at any individual plant. Rather, it is expected that any excess of ingots made by one steel company will have to be shipped around to others which have greater finishing capacity for those products which happen to be at that time in the greatest demand. On a small scale this is exactly what has happened the past few weeks at some steel plants.

In some circles it is said that with the high restrictions on nonessential and some civilian requirements by WPB coupled with a substantial increase in steel production over the past few months, the time may soon come when the steel industry will not have enough steel orders to operate at maximum output. This belief, however, is not uniformly held and other equally informed sources believe that the aspect of the war is such that if the United States does not consume all the steel it is making for primary or urgent war requirements, any balance which might accrue will be promptly picked up by lend-lease needs. Furthermore, it is believed by some that when the steel plan begins to operate, should there be a temporary surplus of steel after the various governmental agency requirements were filled, a temporary relaxation by the WPB on less urgent war needs such as railroad requirements, transportation needs, tin can uses, and agricultural wants might materialize. This cannot very well happen at the present time since no one in authority would be willing to take a chance on relaxing certain steel restrictions until it is definitely known that first line war

requirements are being taken care of.

At any rate, the steel industry under the complete government-directed production and distribution plan, must be prepared to do what now seems impossible. It must be constantly equipped to not only suddenly change some of its scheduling practices but also must find ways and means to more adequately utilize to the fullest extent finishing equipment which is turning out those products which happen to be in the greatest demand. This is said, even though it is definitely realized that the steel industry has been producing virtual miracles in production and distribution.

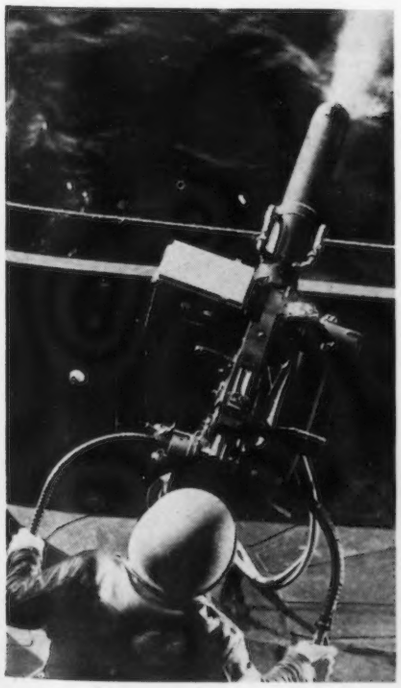
Trade Notes

Atlas Supply Co., Inc., has moved its office and warehouse to 112 Eastern Boulevard, Bronx, New York.

Rockwell Engineering Co., 10126 South Western Avenue, Chicago, has been formed to manufacture steel products to customers' specifications. Anthony J. Rudis, owner of the company, was formerly sales representative of Arthur J. O'Leary & Son Co.

AAC-AAC: Looking very much like a motorcycle driver, or even more appropriate, the tender on a hydraulic mining hose, this steel helmeted Coast Guardsman is shown firing an anti-aircraft gun aboard ship. In many ways the handling of one of these guns closely resembles the squirting of a hose. In this case the stream is steel at high velocity.

Harris & Ewing Photo



Wyckoff ENTERS THE
THIRD YEAR OF VICTORY PRODUCTION

●Nearly three years ago... even before Lend-Lease was a reality . . . Wyckoff Drawn Steels were supplying much needed precision and accuracy in large volume to the defenders of Democracy.

Today 100% of Wyckoff's capacity is serving the United Nations' War Production Program . . . producing uniform quality, fast-working, cold drawn steels . . . the result of more than 25 years of "know-how" and nearly three years of military specification experience.

The Army-Navy "E" Flag, proudly flying at both Wyckoff plants, is a constant reminder to us of still greater goals ahead!

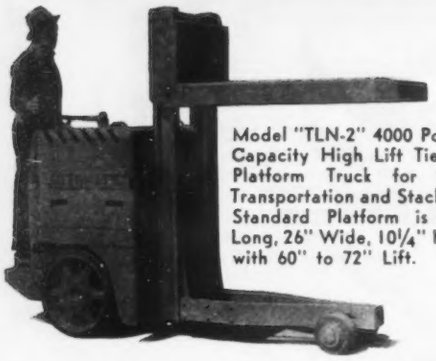
WYCKOFF DRAWN STEEL COMPANY
FIRST NATIONAL BANK BLDG., PITTSBURGH, PA.
3200 SOUTH KEDZIE AVENUE, CHICAGO, ILL.

Manufacturers of Carbon and Alloy Steels . . . Turned and Polished Shafting . . . Turned and Ground Shafting . . . Wide Flats up to 12" x 2"

PRODUCTION FO

TRADE AUTOMATIC MARK

STANDARD *Victory* MODELS



Model "TLN-2" 4000 Pound Capacity High Lift Tiering Platform Truck for Skid Transportation and Stacking. Standard Platform is 55" Long, 26" Wide, 10¼" High with 60" to 72" Lift.

"AUTOMATIC" is wholeheartedly cooperating with the War Production Board by building only approved types of Industrial Power Trucks to conserve vital materials and to speed up material handling in the War Production effort.

Under General Limitation Order L-112 and supplemental order L-112-A issued by WPB, "AUTOMATIC" standard approved models are illustrated and described here.

Let th
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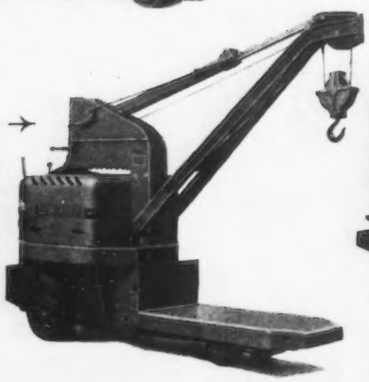
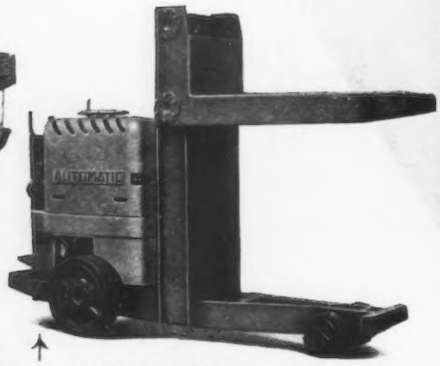
TRANSPORTER

Model "P-427" Pallet Type 4000 Pound Capacity "TRANSPORTER" Fork Type Lift Truck. Standard Established Fork Lengths Are Minimum 30" to 60" Maximum in 2" Steps. Standard Fork Height in Low Position is 3⅜". Lifting Height from Low to High Position Is 3¾" (Get P-427 Bulletin for Full Details).

Model "LN-3" Standard 6000 Pound Capacity Low Lift Truck Equipped with Manual Operated Boom and Motorized Crane attachment. Capacity 2000 Pounds at 42" Outreach.





Model "TLN-3" 6000 Pound Capacity High Lift Tiering Platform Truck for Skid Transportation and Stacking. Standard Platform is 55" Long, 27" Wide, 10¾" High with 60" to 72" Lift.

Model "CHTF-2" Center Control-Light Duty 2000 Pound Capacity Telescopic Tilting Tiering Fork Lift Truck for Unit Loads on Pallets or Skid Platform. Standard Forks Up to 36" Long. Telescopic Lift Up to 119".

Model "THTF-L-4" Center Control 4000 Pound Capacity Telescopic Tilting Tiering Fork Lift Truck for Unit Loads on Pallets or Skid Platforms Standard Forks Up to 36" Long. Telescopic Lift Up to 119".

Model "TLO-5" 10,000 Pound Capacity High Lift Tiering Platform Truck for Skid Transportation and Stacking. Standard Platform is 60" Long, 26¼" Wide, 11" High with 60" to 72" Lift.

MANUFACTURERS FOR OVER 35 YEARS

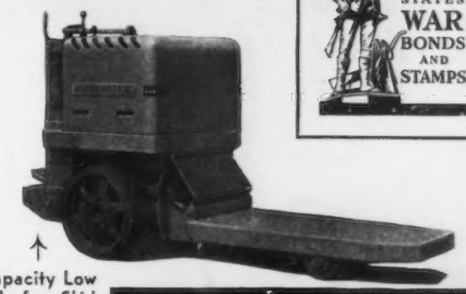
"Electric Propelled" INDUSTRIAL LIFT TRUCKS

FOR Victory

APPROVED TYPES TO CONSERVE VITAL MATERIALS AND SPEED UP WAR PRODUCTION MATERIALS HANDLING

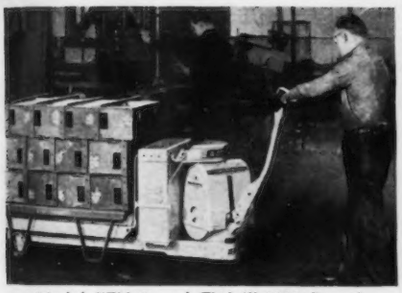
Let the "AUTOMATIC" representative supply you with full details and show you how the standard approved models can be efficiently applied to your present material handling problems and still be highly efficient for post war production work.

"AUTOMATIC" representatives are listed in the classified telephone directories in the principal cities and industrial areas under "TRUCKS INDUSTRIAL."



Model "LN-2" 4000 Pound Capacity Low Lift Elevating Platform Truck for Skid Transportation. Standard Platform Is 55" Long, 26" Wide, 10¼" High with 6" Lift.

LIFT TRUCKS



Model "TN-4 and TW-4" 4000 Pound Capacity and Model "TN-6 and TW-6" 6000 Pound Capacity "TRANSPORTER" Platform Type Lift Trucks for Skid Platforms — Standard Platform Lengths 36" to 72" in 12" Steps. Widths 20" and 26½"; Heights in Low Position 6"; 7"; 9"; 11"; (For Full Details Get "TRANSPORTER" Platform Bulletin).

Model "LO-5" 10,000 Pound Capacity Low Lift Elevating Platform Truck for Skid Transportation. Standard Platform is 60" Long, 26" Wide, 11" High with 5" Lift.

Model "LN-3" 6000 Pound Capacity Low Lift Elevating Platform Truck for Skid Transportation. Standard Platform Is 55" Long, 27" Wide, 10¾" High with 6" Lift.

Model "TETF-7" Rear Control 7000 Pound Capacity Telescopic Tilting Tiering Fork Lift Truck for Unit Loads on Pallets or Skid Platforms. Standard Forks Up to 36" Long. Telescopic Lift Up to 119".

NOTE:—Some "AUTOMATIC" approved models can be furnished with specifications meeting "Industrial Truck Association Spark-Enclosed Equipment" for operation in heavily laden dust or vapor atmosphere such as in arsenals, ammunition depots and ordnance or chemical warfare plants. These are models "LN-2", "TLN-2", "THTF-L-4", "THTF-L-6" and "TRANSPORTER" platform and pallet type lift trucks.

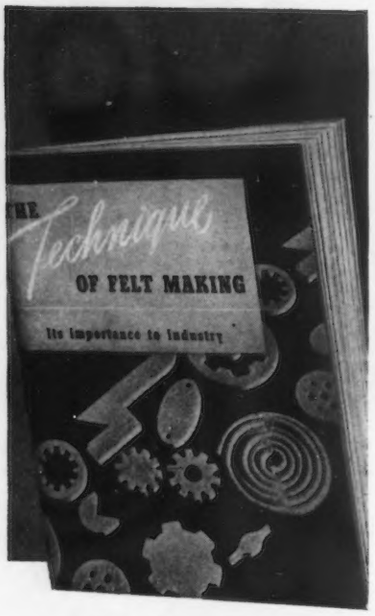
Model "THTF-L-6" Center Control 6000 Pound Capacity Telescopic Tilting Tiering Fork Lift Truck for Unit Loads on Pallets or Skid Platforms Standard Forks up to 36" Long. Telescopic Lift up to 119".

Model "THTF-M-10" Heavy Duty Center Control 10,000 Pound Capacity Telescopic and Non-Telescopic Tilting Tiering Fork Lift Truck for Unit Loads on Pallets or Skid Platforms. Standard Forks Up to 36" Long. Telescopic Lift Up to 98".

AUTOMATIC TRANSPORTATION CO.

DIV. OF THE YALE & TOWNE MFG. CO.

75 WEST 87th STREET CHICAGO, ILLINOIS



Doing the Impossible?

Booth "prescription" felt...precision-cut into mechanical parts... is being used successfully in "unbelievable" applications.

Modern technology produces felts that must be reckoned with, when engineers choose their industrial materials. An impressive range in felt hardnesses, textures, and properties such as resiliency, oil-absorption, abrasion-resistance . . .

Get a copy of Booth's abridged textbook, "The Technique of Felt Making." It will give you a new conception of the industrial importance of felt. May offer a quick solution to your own materials problem.

THE BOOTH FELT COMPANY
477 19th Street, Brooklyn, N.Y.
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COMBINATION APPLICATION CHART AND SAMPLE FILE

. . . yours for the asking. Standard file size. Contains actual swatches of S.A.E. felt types, with complete specification tables. No obligation . . . no sales follow-up.

1908

TRADE MARK
Booth
Precision Cut Felt Parts

Industrial Accidents Kill 100 Here for 36 in Germany

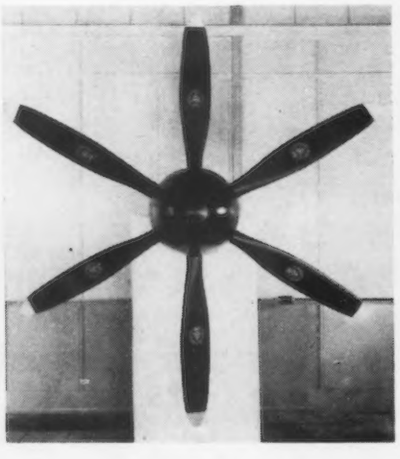
Chicago

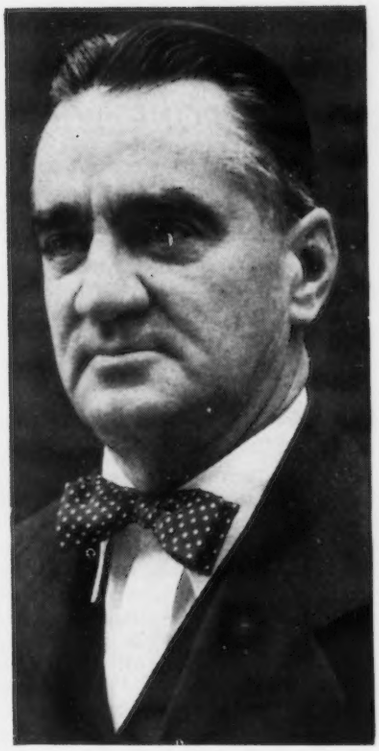
• • • **Industrial accidents** are killing 100 Americans for every 36 Germans and 21 Japanese, William A. Irvin, chairman of the National Safety Council, reported at a meeting of the council held here last week. Accidents this year, Mr. Irvin said, will cause the loss of as many man-days of production as would be required to build 23,000 Flying Fortresses.

While much has been accomplished toward reducing accidents, he told the council, such efforts are still far from being adequate. He pointed out that half of this country's workers and nine-tenths of its population are still not reached to any practical extent by well planned and systematic safety activities.

Industrial accidents this year will disable 150,000 workers more than were hurt in 1941. Col. John Stilwell, president of the council warned. Industrial accidents are still on the increase, he said, due to the use of over-age, inexperienced and physically under-par workers, and to the heavier supervisory load.

NEWEST PROPELLER: This is the first six-bladed, dual rotation propeller in the world to be built around the principle of electrically controlled blade pitch. It is designed by the Curtiss-Wright Corp.'s propeller division to serve with 2000 hp. aircraft engines. Greatest advantage of the propeller is that the two sets of three blades rotate in opposite directions on coaxial shafts which compensates for the twisting effect of motor torque commonly experienced in single engine planes. Its designers say that it will add approximately 5 per cent to the propeller efficiency of planes having speeds of more than 400 m.p.h. and is especially suitable to high altitude performance.





DIRECTS SALESMEN SEEKING SCRAP: National chairman of the American Steel Warehouse Association's dormant scrap drive is J. J. Hill, Jr., president of Hill-Chase & Co., Philadelphia.

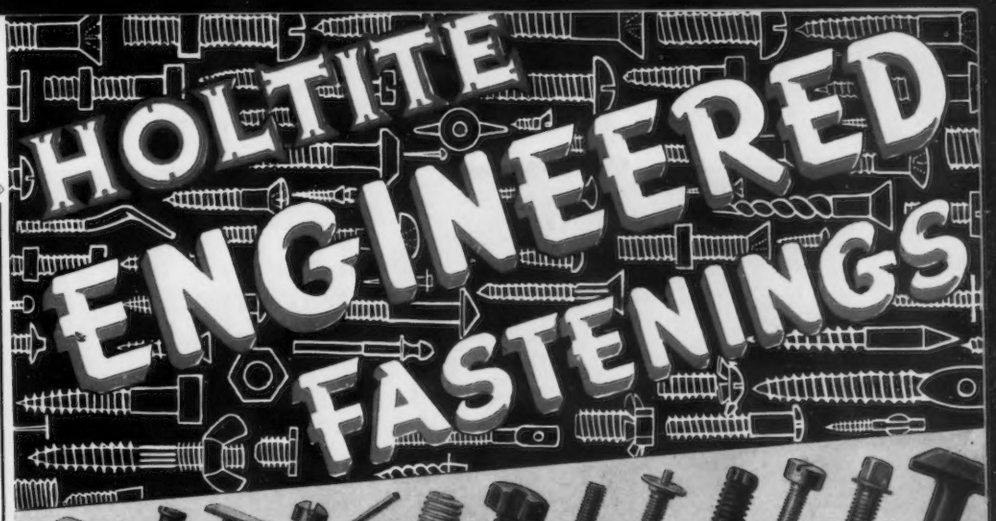
Bethlehem Expansion for Year to Total $35,000,000

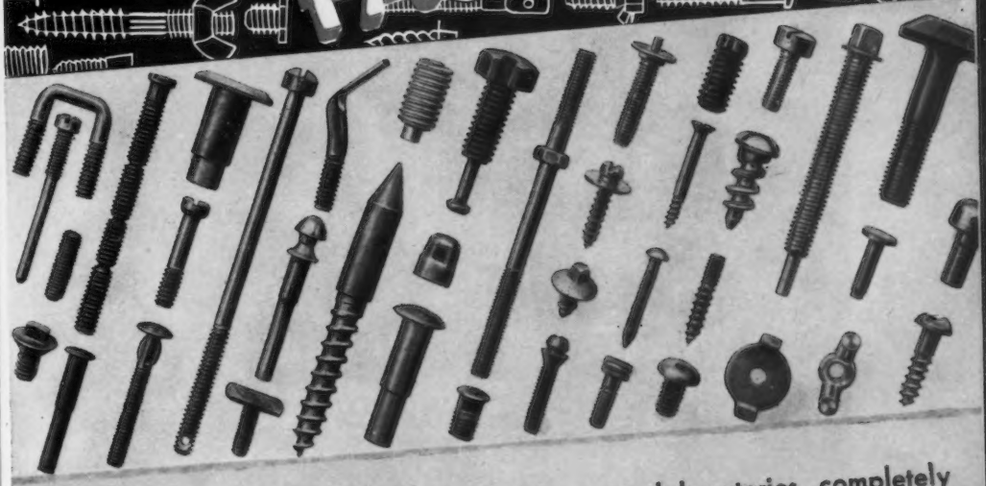
• • • **Bethlehem Steel Co.** has spent $23,000,000 on plant expansion and construction so far this year, and expects to spend $12,000,000 more by the year's end. Eugene G. Grace, president, reported last week. This is in addition to construction being done by Bethlehem with government money, the amount of which was not revealed. The company's construction program will be about finished this year, Mr. Grace said.

Full-Car Order Upon Civilian Freight Takes Effect

• • • **General Order ODT 18,** revised, which prohibits carriers from accepting for transportation any cars containing civilian freight shipments which are not loaded either to the marked weight capacity of the car or to the full visible capacity, is now in effect, as of Nov. 1.

Flat cars and tank cars are exempt from the order, and it does not apply to less-than-carload shipments which are covered in ODT Order No. 1.





From blueprint, to laboratory, to mass production—each step an engineering achievement—HOLTITE Screws, Bolts and Allied Fastenings are designed and produced with the uniform precision of small tools.

Extensive laboratories, completely equipped for metallurgic research, testing and production control assure every HOLTITE user of the most accurate, uniform and rugged fastenings science can devise.

HOLTITE-Phillips Recessed Head Screws and Bolts reduce fastening time and costs an average of 50%. Without danger of driver slipping from recess, electric and pneumatic driving tools can be used, even on finished parts, to safely speed assemblies and increase holding power. No spoilage, injuries or waste. Every screw driven straight automatically—every screw set up tighter without worry about split heads or dangerous burrs. Specify HOLTITE-Phillips on your next fastening requirements.

CONTINENTAL SCREW CO. NEW BEDFORD MASS. U.S.A.

Swifter Driving • Reduced Effort • Less Spoilage = 50% Less Assembly Time with Phillips Screws

It takes less time to get more done with Phillips Recessed Head Screws, and assembly workers don't wear out as the day progresses.

Phillips Screws permit one-hand starting and driving. The screw clings to the driver in almost any position — no fumbling — no slipping — no crooked driving. One hand is always free to steady the work. And, with the slipping driver hazard eliminated, electric and pneumatic power drivers are more often practical.

That isn't all! Less fatigue . . . fewer accidents . . . better work — even from inexperienced operators.

All this adds up to 50% *savings* — in *time*, which is so vital today —and *cost*, which will be a problem again tomorrow.

Any of the firms listed below will supply you.

PHILLIPS RECESSED HEAD SCREWS GIVE YOU 2 for 1 (SPEED AT LOWER COST)

WOOD SCREWS • MACHINE SCREWS • SHEET METAL SCREWS • STOVE BOLTS • SPECIAL THREAD-CUTTING SCREWS • SCREWS WITH LOCK WASHERS

American Screw Co., Providence, R. I.
The Bristol Co., Waterbury, Conn.
Central Screw Co., Chicago, Ill.
Chandler Products Corp., Cleveland, Ohio
Continental Screw Co., New Bedford, Mass.
The Corbin Screw Corp., New Britain, Conn.
International Screw Co., Detroit, Mich.
The Lamson & Sessions Co., Cleveland, Ohio
The National Screw & Mfg. Co., Cleveland, Ohio
New England Screw Co., Keene, N.H.
The Charles Parker Co., Meriden, Conn.
Parker-Kalon Corp., New York, N.Y.
Pawtucket Screw Co., Pawtucket, R.I.
Pheoll Manufacturing Co., Chicago, Ill.
Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N.Y.
Scovill Manufacturing Co., Waterbury, Conn.
Shakeproof Inc., Chicago, Ill.
The Southington Hardware Mfg. Co., Southington, Conn.
Whitney Screw Corp., Nashua, N.H.

How to Address

The WRONG Way

More than 21,000 pieces of mail—about 3,000 pounds are received each week in the mail room in the Chicago WPB office.

From ¼ to 1/3 of this mail comes in addressed like this

WAR PRODUCTION BOARD
20 North Wacker Drive
Chicago, Illinois

This address is inadequate for prompt handling

Every letter, or package, so received has to be opened IN THE MAIL ROOM—to ascertain which one of the many departments should get this mail. If it had been properly addressed—showing the departmental, such as Regional—District—Division or Branch of Service you're contacting—then your mail would be placed on the desk of the proper executive within the hour received.

You may be shocked to learn that when seals are broken—it is still necessary to read the contents of the letter before mail supervisor can reroute it to ultimate destination.

BUT—THAT'S NOT ALL!

Many manufacturers address their most important mail to

W.P.B.
20 North Wacker Drive
Chicago, Ill.
Registered--
Confidential

in which case our mail clerks are really on the spot. Registered, confidential, mail should be opened ONLY by the executive designated by the manager of the department.

When possible, that is, when the name of the sender and his return address appear in upper left corner of his envelope, our mail supervisor contacts the sender for further information, by telephone.

If the sender is outside the Chicago area, and telephoning is impractical, the supervisor breaks the seal, corrects the address, re-seals and makes special delivery with explanation as to why the confidential mail had to be opened.

The RIGHT Way

WAR PRODUCTION BOARD
c/o Department
20 North Wacker Drive
Chicago, Illinois

If your business is with the RE-

Mail to WPB

GIONAL OFFICE direct your message to one of the following departments:

Administrative Officer Director
Compliance Labor Division
Conservation Division Legal

Conservation covers:
Liaison Office
Automobile Graveyard
General Salvage
Industrial Salvage
Special Project Section

Materials Division (Critical)
Production Division

A service for producers:
How to get a Contract.
This department was previously called
Contract Distribution Branch

WAR PRODUCTION BOARD
c/o Department
20 North Wacker Drive
Chicago, Illinois

If your business is with the DISTRICT or LOCAL OFFICE direct your message to one of the following departments:

Compliance and Investigation
Financial
Inventory and Requisition
Priorities

Priorities covers:
Allocation—Classification System
Appeals—(forms and service)
Construction Division—New Construction—Remodeling—Repairs, etc.
Emergency Repairs
Expediting
Orders—Forms—General Information
Clinics on P.R.P., Meetings and Other Data

War Production News
Statistical Division
Used Construction Machinery Section

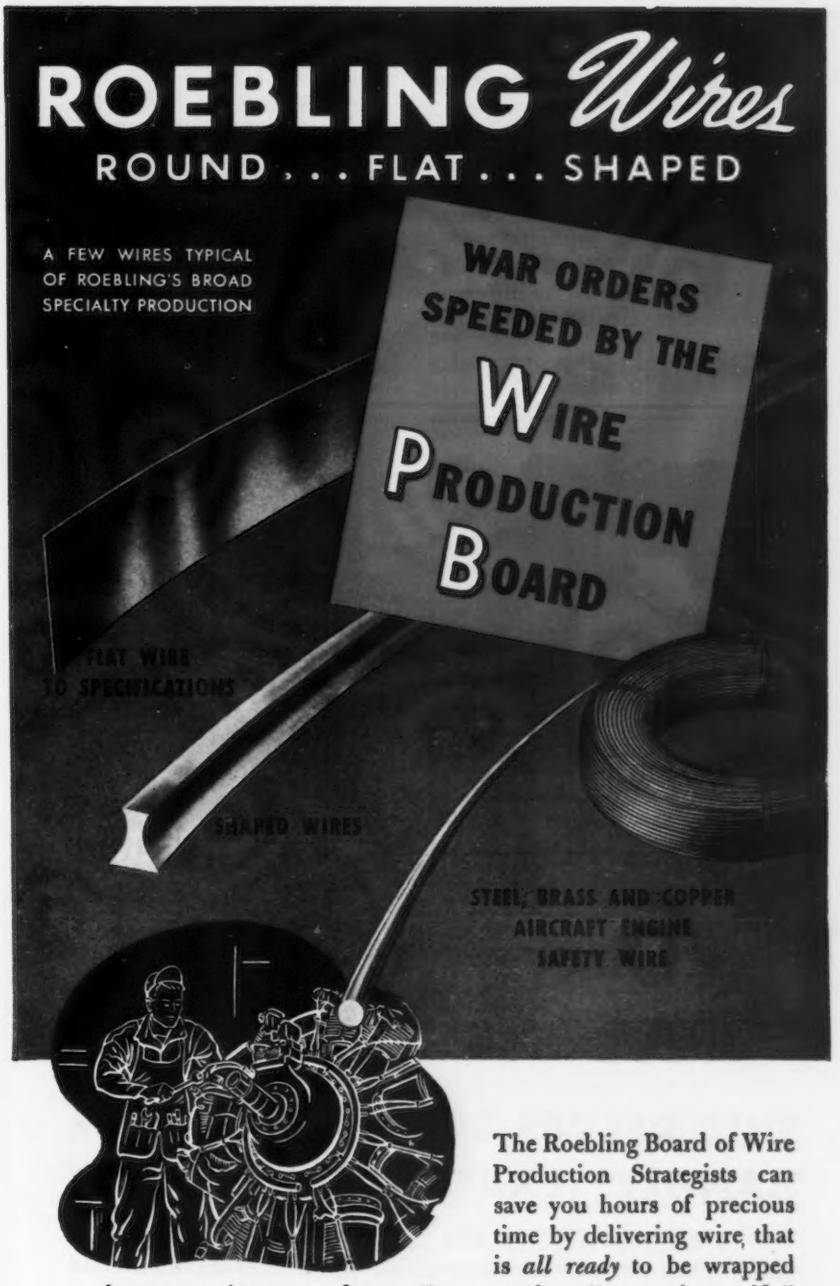
COMING EVENTS

Nov. 17 to 22—National Chemical Exposition, Chicago.

Nov. 30 to Dec. 3—American Society of Mechanical Engineers, annual meeting, Hotel Astor, New York.

Nov. 30 to Dec. 4—National Exposition of Power and Mechanical Engineering, New York.

Dec. 1 and 2—American Society of Refrigerating Engineers, New York.


ROEBLING Wires
ROUND . . . FLAT . . . SHAPED
A FEW WIRES TYPICAL OF ROEBLING'S BROAD SPECIALTY PRODUCTION
WAR ORDERS SPEEDED BY THE WIRE PRODUCTION BOARD
FLAT WIRE TO SPECIFICATIONS
SHAPED WIRES
STEEL, BRASS AND COPPER AIRCRAFT ENGINE SAFETY WIRE

The Roebling Board of Wire Production Strategists can save you hours of precious time by delivering wire that is *all ready* to be wrapped into your victory products. For example, a "tremendous trifle" such as the Airplane Engine Safety Wire that prevents vital fastenings from shaking loose under thousand horsepower vibration.

Making these wires is a specialty. Some call for extremely close control of steel analysis . . . others require brass or copper to exacting "specs", and they *all* require extreme ductility.

Do these specialty wires suggest a short cut to beating your quota? Roebling round, flat and shaped wires have been the prevention of hundreds of "too little, too late" problems where wire is the critical factor. They may be the answer to yours.

JOHN A. ROEBLING'S SONS COMPANY
TRENTON, NEW JERSEY • Branches and Warehouses in Principal Cities

Pay Rates for Tool and Die Industry Discussed

Detroit

• • • **War Labor Board** representatives conferred with management and union representatives last weekend on tool and die pay with representatives of the UAW (CIO) maintaining there should be no differential between captive shops and job shops.

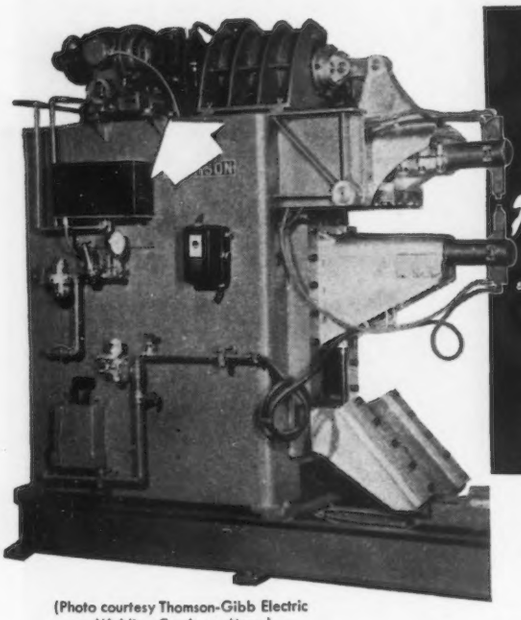
In recent Chrysler, General Motors and Ford cases involving tool and die workers, maximums of $1.60 an hour for captive shops and $1.75 for job shops were set. These scales were ordered applicable to the entire industry "until such time as the board finally determines the issues raised at the hearings." Some management sources said there was no movement of men of any consequence between the two types of shops, a belief also held by some labor leaders.

New York to Salt Lake City All-Cargo Air Service Starts

Cleveland

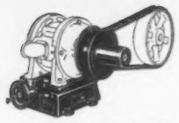
• • • **The establishment** of the first all-cargo plane service through Cleveland connecting the industrial East with major Pacific Coast cities was announced last week by United Airlines. Regular Douglas DC-3 passenger planes will be used. The flight will leave New York at 11:55 p.m. and Cleveland at 3:10 a.m., operating into Salt Lake City where it will connect with regular combination passenger-cargo trips to the Coast. It is believed this is the first major move of commercial air lines to get into the 100 per cent cargo business instead of the combination passenger-cargo routes.

According to Robert L. Myer, United Airlines local cargo manager, Air Express has already increased 171 per cent over last year.



FASTER, BETTER *Airplane Welding* WITH REEVES SPEED CONTROL

(Photo courtesy Thomson-Gibb Electric Welding Co., Lynn, Mass.)



VARI-SPEED MOTOR PULLEY

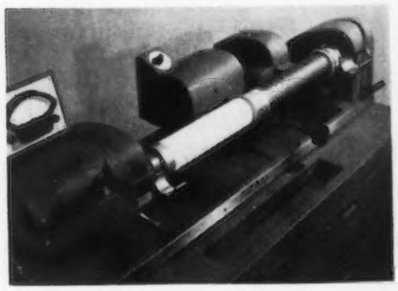
THIS REEVES-EQUIPPED WELDER HANDLES EXACTING JOBS FAST

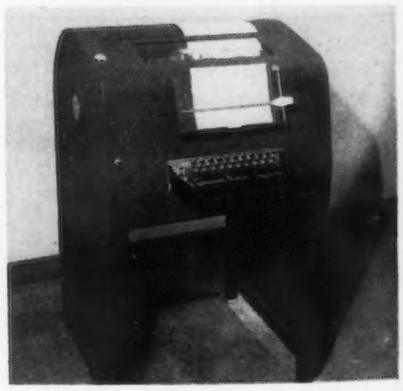
• WELDING is one of the toughest operations on any airplane assembly line. Not only are the metals among the most difficult to weld, and the assemblies complicated and hard to handle, but the standards of weld quality are probably higher than for any other type of work. This Thomson rocker-arm type spot welder is an example of the kind of equipment that is producing consistently good high test welds and meeting all other requirements of aircraft welding at production speeds. It is equipped with a REEVES Vari-Speed Motor Pulley for regulating the speed required for handling different thicknesses of aluminum alloy and stainless steel. REEVES permits the number of welding strokes per minute to be changed without stopping. REEVES Variable Speed Drives put more "fight" into any production machine by providing full-range, stepless speed adjustability. Standard equipment on 1,440 different makes of machines. Easily installed on machines in service. Write for Catalog-Manual IG-419, describing Vari-Speed Motor Pulley, Transmission, Motodrive.

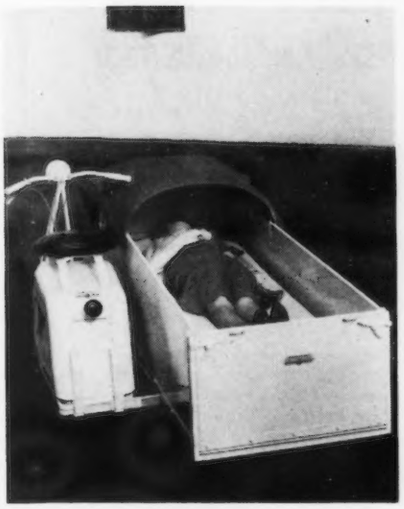
REEVES PULLEY COMPANY, COLUMBUS, INDIANA

REEVES *Accurate Variable* **SPEED CONTROL**

LINCOLN WELDING AWARD WINNERS: These two Teletype units won awards for their designers, both engineers of Western Union Telegraph Co. The console Teletype instrument won $2,700 for its designer, Paul J. Birkmeyer, Verona, N. J. The housing of the Western Union Multifax instrument won $250 for its entrant, Fenwick Vogel of New York City.







SCOOTER AMBULANCE: Designed especially to render quick aid to industrial injuries in today's mile-long modern plants this "scooter" type ambulance has been introduced by the B. F. McDonald Co., Los Angeles. The unit consists of a gasoline powered scooter carrying a 6 ft. 8 in. stretcher mounted above knee-action wheels. It will accommodate three passengers; a patient, driver and attendant and is said to get 90 miles to the gallon of gasoline and have a speed of about 30 miles an hour.

Winter Problems Not Fully Solved

Pittsburgh

• • • **In the midst** of the optimistic news covering successes in scrap drives throughout the country which have been greater than anticipated, there are many steel and scrap authorities who look anxiously toward the coming winter months.

A reservoir of scrap has been built up for that period when scrap collections are normally low, but it is not definitely known if this tonnage is great enough to tide the steel industry over the coming critical months.

Authorities had warned that the bypassing of the "scrappie" made mandatory a perpetual or continual scrap drive which would last for the duration. Furthermore, much support had been expected from the original War Materials, Inc. Since the latter has been reduced to the role of a banker, the task of supplying heavy melting scrap from above ceiling projects rests with the salvage division of the WPB. It is interesting to note that this same division, for more than 8 months, had been charged with the same responsibility which it now has. Time alone will tell whether it can meet the commitments which it took over when WMI was emasculated.

Greatest fear in the minds of scrap and steel people is that the enthusiasm generated for the household drives may dissipate rapidly, owing to the non-recurring nature of such scrap which has already been collected. It is further said that a first class snowfall will not only hinder new collections, but will hamper the processing of the thousands of tons of public scrap which has already been collected and is reposing in various points throughout the country.

The urgency of the scrap situation, not for the next six months but for the duration of the war, is such that campaign or other type of politics cannot interfere with collections nor can any letup in effort materialize if production of steel is to remain at current levels.

for high efficiency
in the production of:

ARMSTRONG TOOL HOLDERS
ARMSTRONG Turret Lathe and Screw Machine Tools
ARMSTRONG LATHE DOGS
ARMSTRONG Drop Forged WRENCHES
ARMSTRONG Socket Wrenches
ARMSTRONG "C" CLAMPS
ARMSTRONG HIGH SPEED STEEL
ARMSTRONG RATCHET DRILLS
ARMSTRONG SETTING-UP TOOLS
ARMSTRONG Machine Shop Specialties
"ARMSTRONG BROS." PIPE TOOLS

—all vital tools of modern warfare.

ARMSTRONG BROS. TOOL CO. *"The Tool Holder People"* **CHICAGO, U. S. A.**

$26 Million Foundry for Cast Steel Armor Opened

• • • **A $26,500,000 steel** foundry built solely for producing cast steel armor was formally opened last week in a Mid-West city, less than a year after engineers were assigned to prepare plans. The huge foundry, financed by the Defense Plant Corp., was designed and built by American Steel Foundries which will also operate the new plant.

The first heat at this plant has already been poured and full production on tank turrets and other armor parts will be reached shortly. According to Thomas Drever, president of American Steel Foundries, about 1200 employees are already at work. When full operations are reached approximately 5000 workars will be needed, of which 40 per cent are expected to be women.

Steel Wages Climb To New 108.6c. Peak

. . . Steel industry payrolls in September set an all-time high of $124,777,000, leading the previous high set in July by nearly $5,000,000, according to the American Iron and Steel Institute.

Average hourly earnings of wage earners rose from 104.1c. in August to 108.6c. in September compared with 98.2c. an hour last September. At the same time average weekly hours worked jumped from 37.6 in August and 37.8 in September a year ago to 39.8 this September, a new record.

Employment in the steel industry continued to drop with 641,000 on the rolls in September compared with 647,000 in August and 652,000 in September of last year.

Ford Producing Gliders In New Woodworking Plant

Detroit

• • • **Ford Motor Co.** is now in production in a woodworking plant in an Upper Michigan city producing 15-passenger transport gliders. The fuselage of this glider is built around a framework of tubular steel. Wings are of airplane spruce and mahogany plywood.

Tooling up for the motorless ship required the design of more than 4000 tools, a number of them giant fixtures. Manufacture of these tools was divided between the Ford Rouge plant tool room and 30 tool making concerns. Approximately four months after blueprints of the Waco ship were handed to Ford, the first Ford-made glider was ready.

WPB Seen Moving For Aircraft Production Control

• • • **WPB last week** appeared to be moving toward closer control over aircraft production, which eventually is likely to be directly under the supervision of Charles E. Wilson, new WPB production vice chairman.

It was unofficially reported last week that the Materials Branch of the Aircraft Production Division of WPB was dissolved on Oct. 29.

Up to the present, WPB has been acting in an advisory capacity on the aircraft production program. Controls have been exercised largely through the Army and the Navy.

National Emergency Alternate Steels

Designation	Chemical Composition (b)				
	C	Mn	Mo	Ni	Cr
NE8024	0.22-0.28	1.00-1.30	0.10-0.20	....	....
NE8124	0.22-0.28	1.30-1.60	0.25-0.35	....	....
NE8233	0.30-0.36	1.30-1.60	0.10-0.20	....	....
NE8245	0.42-0.49	1.30-1.60	0.10-0.20	....	....
NE8339	0.35-0.42	1.30-1.60	0.20-0.30		
NE8442	0.38-0.45				
NE8447	0.43-				
NE8547	0.43-				
NE8620	0.18-				
NE8630	0.27-				

Will the Machinability of NE Steels prove to be a Tough Problem?

THE answer will be "Yes" or "No"—depending upon the skill used in handling the change-over.

Changes may be required in tools and tooling; changes in speeds and feeds, *and in cutting fluids.* When this last factor is considered

Stuart Oil Engineering Service

is equipped and ready to help you apply the *Right Cutting Fluid* to "cranky" steels.

Stuart's Thred Kut — Heavy Duty Cutting Oil. Recommended by America's leading machine tool builders

Stuart's Solvol — Liquid Cutting Compound. For carbide tools and where an "aquamix" solution is recommended

Stuart's Codol — Liquid Grinding Compound. Meets every test for the ideal Modern Grinding Compound

Stuart's "Super-Kool" — America's First Transparent Sulphurized Cutting and Drawing Oil

For All Cutting Fluid Problems

D. A. STUART OIL CO. LIMITED

Chicago, U.S.A. • Est. 1865

Warehouses in All Principal Metal Working Centers

HERE'S WHY *Scrap* IS SO IMPORTANT!

SCRAP iron or steel turnings, clippings, short ends, worn out or broken tools, spoiled work, idle and obsolete machinery, etc., are valuable as raw materials for remelting in the production of new steel.

Through previous refining, ingredients undesirable in steel have been reduced—thus the use of properly prepared scrap speeds the refining process and enables new steels to be produced more rapidly. Recapture of scrap—from your plant—means opportunity to save time and labor—hence more steel.

Certain scrap contains valuable alloying elements such as nickel, molybdenum, tungsten, etc. which can and must be recovered to augment primary supply to meet tremendously increased demand for constructional and high speed alloy steels for more planes, tanks, guns, ships, tools and machinery essential to the war effort.

To be of maximum immediate assistance, scrap should be segregated by composition wherever possible. Turnings, spoiled work etc. should be identified (SAE, AISI, NE etc. grade number) at the machine where they are generated and so handled as to avoid contamination by waste material or scrap of other types and grades.

The metallurgical experience of our staff is available to aid you in technical phases of metal salvage.

KEEP SCRAP MOVING INTO WAR PRODUCTION!

THE INTERNATIONAL NICKEL COMPANY, INC. 67 WALL STREET NEW YORK, N. Y.

New Molybdenite Sources Announced in Canada

Ottawa, Canada

• • • **Formal** announcement was made here recently by the Canada-United States Materials Committee, that new sources of molybdenite, including a large-scale deposit in Northern Quebec will aid in the production of essential types of steel for war purposes, officials of the Department of Munitions and Supply announced. With equipment now being placed on the deposit in Preissas Township, Quebec, the Department of Munitions and Supply already has given an order for 2,000,000 pounds to Dome Exploration Co., which is developing the find. Shortage of molybdenum, used in place of tungsten in the manufacture of steel, recently caused the joint committee to reduce quarterly quotas affecting Canada, the United States, United Kingdom, Russia and Australia.

While molybdenite is known to occur in about 400 deposits in Canada, the Preissac development is considered one of the most promising. It is only a short distance from a deposit being worked by Wartime Metals Corp., a government-owned company, in Lacorne township formerly operated by Molybdenite Corp. Consolidated Mining & Smelting Co., in British Columbia, also is an important producer. A small ball mill will be installed at the Dome find for crushing the molybdenite and production is expected soon. It also is stated that other deposits will be developed and brought into production in Canada.

Under peace-time conditions development of some of the known deposits in Canada was not justified, but the war has created vast new demands. In 1940 the United States produced 95 per cent of the world's supply.

Chicagoan Heads NEMA

• • • **Max McGraw,** president, McGraw Electric Co., Chicago, was elected president of the National Electrical Manufacturers Association yesterday at the concluding session of the Association's annual meeting in New York last week. He succeeded George C. Thomas, Jr., president of Thomas & Betts Co., Elizabeth, N. J.

Therm-O-flake
INSULATION BRICK

One of lightest insulation brick available—(about one pound each).

Has low thermal conductivity, and is most economical for efficient insulation.

Can be compacted without breaking and cuts easily.

Especially valuable for back up work behind fire brick walls.

Acts as expansion cushion between furnace walls and binding structure.

•

Write for Information and Prices

Other Therm-O-flake Products
Made from Exfoliated Vermiculite
Granules - Brick - Block - Concrete

Illinois Clay Products Company
JOLIET, ILL.

MAHR

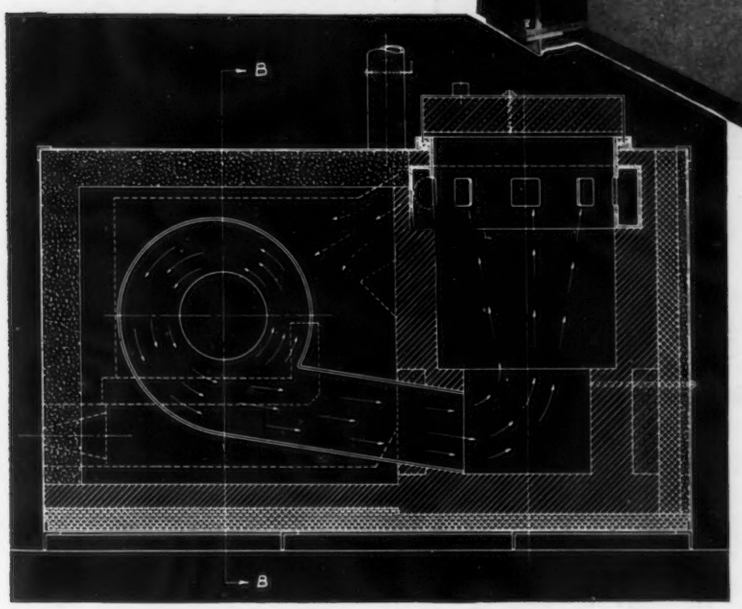
ENGINEERS • DESIGNERS • MANUFACTURERS
ALL EQUIPMENT FOR METAL HEATING

Recirculating-Cylindrical HEAT PROCESSING UNIT

*for air drawing at 1250°F**

**and for other heating processes at intermediate temperatures*

Here's an all-purpose MAHR heat processing unit with great flexibility of use. For heat application to ferrous or non-ferrous metals, also plastics—it handles a wide variety of small parts for war production—and will be equally adaptable later to the needs of peace time manufacturing. It has a quick heat-up and remarkably uniform temperature continuously during the treating period. This MAHR unit is very economical because of its efficient recirculating design and thorough insulation. MAHR'S quarter century of experience assures its dependable quality.



LONGITUDINAL CROSS-SECTION VIEW showing arrangement of blower, ducts, and cylindrical treating chamber, with collector ring at top proportioned for *uniformly even* flow of air back to heating chamber for recirculation.

Gas or Oil Fired with manual control as standard. Temperature control and flame failure safety equipment available at extra cost.

Construction is of mild steel casing with removable top for easy access to inside.

Self-Sealing Lid for heating chamber provides a tightly sealed joint when closed, and also locks itself in position when open. It is an extremely easy working mechanism.

Fan, Shaft and Duct are of special heat resistant alloy steel. Fan on shaft cools shaft bearing.

Lining is best grade refractory. Cover is lined with castable refractory insulation. Treating chamber is walled with fire brick.

Insulation as noted in cross section is brick and block insulation that effectively keeps the heat within the unit.

Made in 9 sizes—Cylindrical basket sizes for treating chamber range in diameter from 12″ to 48″ and in depth from 16″ to 60″. Special sizes can be made.

MAHR FURNACES
FOR EVERY HEAT TREATING NEED

	Furnace Types:	*Other MAHR Equipment:*
ANNEALING	CAR BOTTOM	RIVET FORGES
CARBURIZING	PIT	TORCHES
BAKING	PUSHER	BURNERS
HARDENING	ROLLER HEARTH	BLOWERS
FORGING	CONTINUOUS	VALVES
DRAWING	POT	SMITHING FORGES
STRESS RELIEF	ROTARY	

Call in a MAHR Engineer
he can help you on any heat treating problem . . . Wire, write, or phone today.

Sales Offices in Principal Cities

MAHR MANUFACTURING CO.

DIVISION OF DIAMOND IRON WORKS, INC.
1703 NORTH SECOND STREET • MINNEAPOLIS, MINNESOTA, U. S. A.

★ Save ALL your scrap! ★

★ Buy MORE War Bonds! ★

Construction Gains 17%; Private and Public Volumes Up

New York

• • • **Engineering construction** volume for the week totals $103,282,000, an increase of 17 per cent over the preceding week, and 1 per cent above the corresponding 1941 week as reported by *Engineering News-Record.* Both private and public construction are higher than a week ago, the former climbing 69 per cent, and the latter 15 per cent. Private work, however, is 79 per cent below a year ago, but public construction is up 44 per cent. Federal construction is 12 and 110 per cent higher, respectively, than last week and last year.

The current week's construction brings the 1942 volume to $8,324,585,000, an increase of 59 per cent over the $5,250,210,000 reported for the 44-week period in 1941. Private work, $511,781,000, is 52 per cent under the period last year, but public construction, $7,812,804,000, is 87 per cent higher as a result of the 136 per cent climb in federal work.

WPB Reports 3,281,099 Machine Tool Hours

• • • The Critical Tool Service of WPB, whose job it is to locate idle machine tool hours and put them to work on war production, report a summary of their progress after a period of six and one-half months of operation. See this weeks chart of available hours on critical machine tools on page 150.

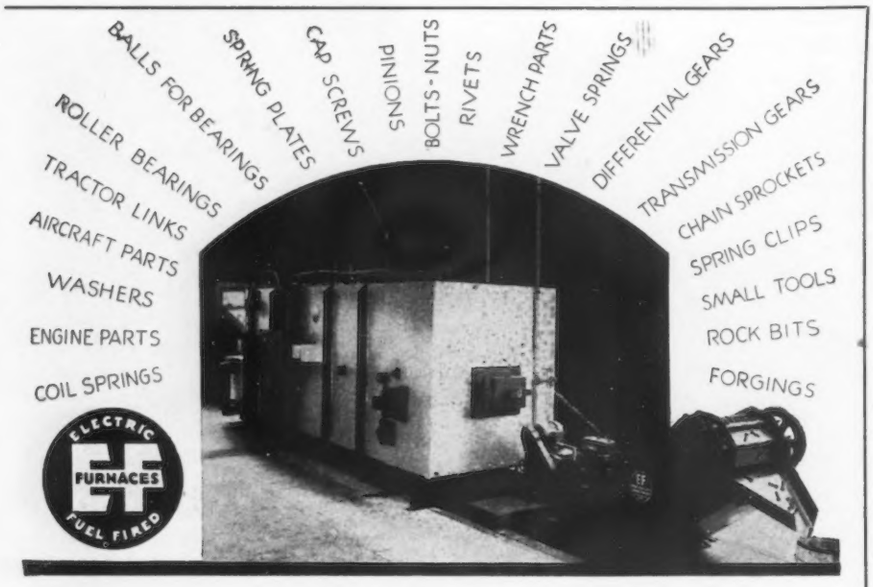
1. Jobs currently under negotiation for placement..	555
1-a. Estimated machine tool hours required to handle jobs awaiting placement	7,572,000
1-b. Estimated value of this work on basis of $4.00 per hour including estimated materials and other services involved..	$30,289,000
2. Machine tool hours contracted—week ending October 23	1,908,000
2-a. Estimated value as in 1-b above	$7,630,000
3. Cumulative total machine tool hours already contracted for through Critical Tools Service	23,919,000
3-a. Estimated value as in 1-b	$95,676,000
4. Critical machine tool hours currently available weekly	3,281,099

Structural Shipments and Bookings Drop in September

• • • **Shipments** of fabricated structural steel during September, according to the American Institute of Steel Construction, amounted to 164,561 tons, compared with 204,085 tons shipped during the same month last year. The total tonnage shipped during the first nine months of 1942 amounted to 1,591,826 tons a decline of five per cent from last year. New Business booked during September amounted to 61,750 tons, the smallest since the start of the defense program in 1940. Last year's comparable figure was 158,782.

Changes Company Name

The Buckeye Portable Tool Co. of Dayton, Ohio, announces its change in name to Buckeye Tools Corp. There has been no reorganization or change in its management, administrative staff, or products.



For Hardening Machine Gun Cartridge Clips

and Miscellaneous Other Products

---300 to 1700 lbs. per Hour

. . . Investigate E F Chain Belt Conveyor Type Furnaces

E F Continuous Chain Belt Conveyor Type Furnaces are handling all kinds of products ranging in sizes from small springs and machine gun cartridge clips up to large crawler links for tanks and tractors. Hundreds of these furnaces are in operation, handling such products as listed above.

The material is loaded directly onto rugged heat resisting cast link belt conveyors. Without further attention, it is carried through the furnace, uniformly heated to the proper temperature and automatically discharged through a sealed chute to the quenching medium or directly from the furnace as desired. The chain belt conveyor returns within the furnace without cooling—no pans or trays are used in the furnace—100% net material.

These furnaces are built for oil, gas or electric heat in five standard sizes with capacities ranging from 300 to 1700 lbs. per hour. Larger or smaller sizes can also be furnished. They are also designed for using special protective atmospheres for scale-free heat treating and hardening without decarburization.

The hundreds of installations in operation, handling all kinds of material, have proven them the most satisfactory and dependable general purpose heat treating machines built for the uniform, economical, production heat treatment of miscellaneous small and medium sized parts and products.

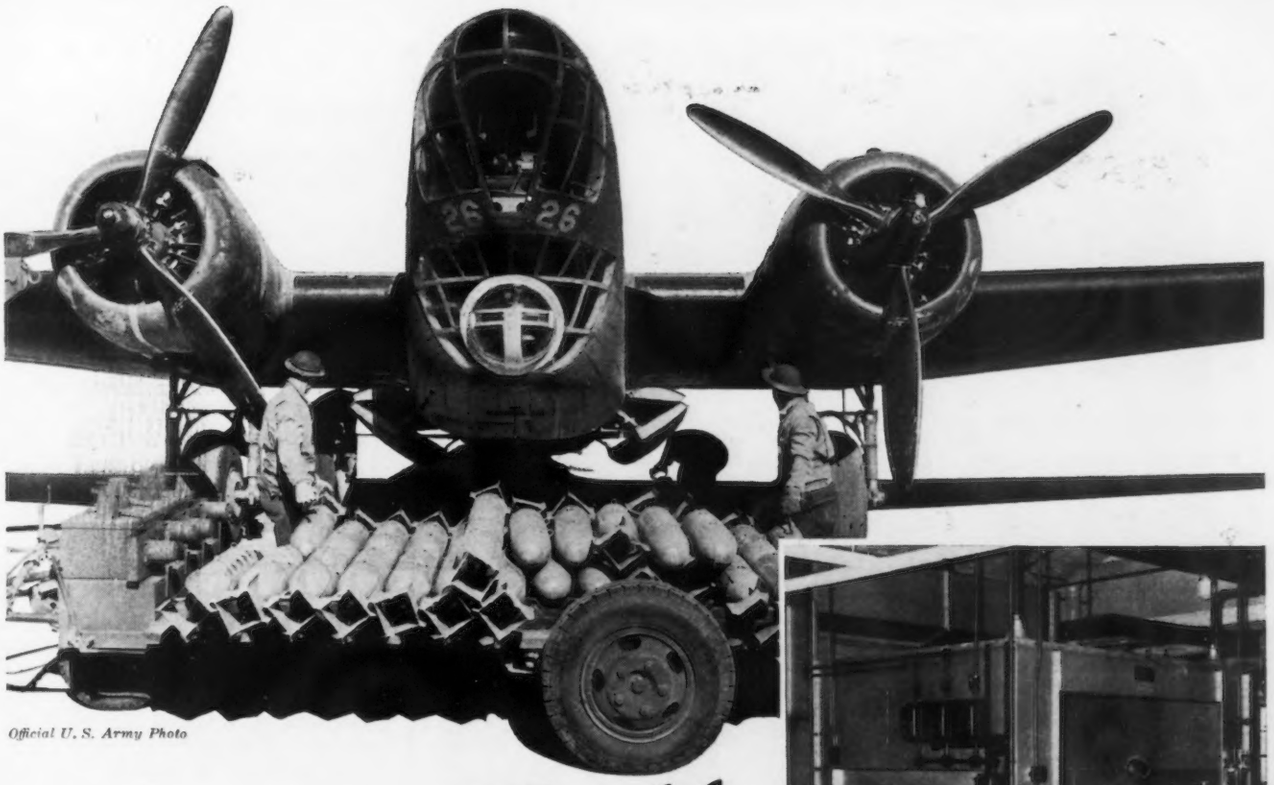
The Chain Belt Conveyor Furnace is only one of the numerous types of production furnaces we build for various heat treating purposes.

Tank armor castings, shell forgings, cartridge cases, bomb and gun parts, aircraft and aircraft engine parts, and many other allied products are being uniformly treated in outstanding production furnaces built by the Electric Furnace Company, Salem, Ohio. We specialize in designing and building production furnaces.

Send for circulars showing these and other types

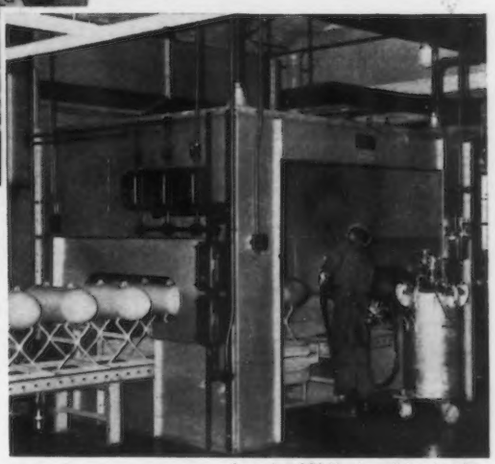
The Electric Furnace Co., Salem, Ohio

Gas Fired, Oil Fired and Electric Furnaces---For Any Process, Product or Production



Official U. S. Army Photo

Hatching Trouble
FOR THE AXIS



Spraying 300 lb. demolition bombs

● With increasing fury and greater frequency, vast clouds of Allied bombers are laying their explosive "eggs" on vital enemy war centers. For these gigantic raids millions of tons of bombs must be made ready for the bomb "nests" of our planes.

In munitions plants and government arsenals all over the country, DeVilbiss Spray Systems are helping to step up the pace and the power of these devastating attacks. Every hour of the day and night DeVilbiss spray guns are giving thousands of bombs a special coating, inside and out, that protects them against the corrosion that might affect their fire power.

• • •

THE COMPLETE DEVILBISS LINE CONSISTS OF: Spray finishing equipment • Automatic coating machines • Tanks for spray materials Spray booths and exhaust fans for vapor and dust elimination Air regulators, cleaners and dusters • Air compressors • Respirators Specialized hose for paint, air, water, gasoline, welding and pneumatic tools • Hose connections • Water and oil guns • Equipment to prevent offset in printing • Paint stripers • Medicinal atomizers.

Ammunition of all sizes and shapes—demolition and incendiary bombs, projectiles, depth charges, shells, grenades, cartridges—all are being sped to fighting fronts by DeVilbiss Spray Systems. Other war products too—from firing instruments to battleships—are getting a fast and thorough finish with DeVilbiss Equipment.

Whatever your war work may be—the production of materiel—the building of camps, plants or houses—the application of blackout or camouflage—DeVilbiss can step up your coating, painting and finishing operations to a new speed record.

THE DEVILBISS COMPANY • TOLEDO, OHIO
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DEVILBISS
SPRAY SYSTEMS

for *Floors* that must stand the ceaseless grind of war production

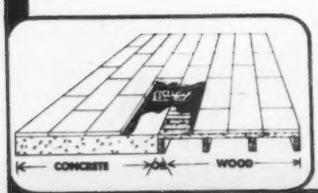
Carey Elastite INDUSTRIAL FLOORING

Ready for use immediately—shutdown not required for application

Here's a HEAVY-DUTY industrial flooring, substantially heavier and tougher than ordinary asphalt tile. When supported by a suitable sub-base, it will carry loads of great intensity. It will not powder under heavy wheel traffic.

While relatively hard, CAREY ELASTITE Industrial Flooring is resilient, comfortable under foot, practically noiseless, and fire resistant. Due to its smoothness and resiliency, heavy loads are easily moved with less manpower. Non-skid, it lessens accidents and breakage of trucks and tools.

CAREY ELASTITE Industrial Flooring is scientifically made from asphalt, mineral filler and asbestos fibre. May be applied by ordinary labor. Its favorable first cost, long service and low maintenance, reduce floor overhead. Write Dept. 26 for full information.



THE PHILIP CAREY MFG. COMPANY • Lockland, Cincinnati, Ohio
Dependable Products Since 1873
IN CANADA: THE PHILIP CAREY COMPANY, LTD. Office and Factory: LENNOXVILLE, P. Q.

Changes Relating to Renegotiation of U. S. Contracts Outlined

• • • **Renegotiation** of government contracts has allowed profit margins to industry ranging from 4 per cent to 33 per cent on sales before taxes, according to Maurice Karker, chairman of the War Department Price Adjustment Board, speaking in New York last week. He estimated that through Sept. 30, renegotiation of contracts had saved some $600,000,000 for the War Department, of which $53,000,000 was in the form of return by industry of profits already made.

Changes in the law relating to the authority of the War and Navy Departments and the Maritime Commission to renegotiate war contracts in order to eliminate excessive or exorbitant profits are contained in the Revenue Act of 1942, signed by the President on Oct. 21.

These changes were enacted as amendments to Section 403 of the Sixth National Defense Appropriation Act and clarify procedures under which renegotiation is proceeding. Some amendments represent a codification of practices which the price adjustment boards of the three services have been following in recent months. Others are of a basic nature, intended to clarify practices and speed renegotiation. The amendments include:

(1) RENEGOTIATION OF TREASURY CONTRACTS: Contracts with the Treasury Department, which makes many of the lend-lease contracts and subcontracts thereunder, also are made subject to renegotiation.

(2) FINAL AGREEMENTS: When a contractor or subcontractor has renegotiated in good faith for a specified period and agreed to eliminate excessive profits for such period, he is entitled to assurance that the matter will not be reopened at a later date. Amendments now specifically authorize such final agreements for a specified past or future period.

(3) STATUTE OF LIMITATIONS: Two provisions effect a statute of limitations on renegotiation. One prohibits renegotiation after one year from the close of the fiscal year in which the contract or subcontract was completed or terminated. The other authorizes a contractor to file financial and cost statements for a prior fiscal period and obtain clearance under the statute unless the Secretary begins renegotiation within one year thereafter.

(4) OVERALL RENEGOTIATION: Under the original law when a contractor or subcontractor held a number of war contracts or subcontracts, the boards had found it desirable to renegotiate with him to eliminate excessive profits on these contracts or subcontracts as a group, or on an overall basis instead of individually. Section 403 authorized renegotiation of contracts individually. In view of the boards' practice of considering contracts as a group, the group renegotiation has been formalized as part of the statute. Excessive profits are determined

by an overall study of a company's financial position and the profits, past and prospective, from its contracts are taken as a whole rather than by analyzing each individual contract on a unit cost basis. The statute provides that a renegotiation clause shall be inserted in every war contract of $100,000 or more.

(5) ELIMINATING EXCESSIVE PROFITS: With respect to prospective profits it always was desirable to eliminate such profits by reductions in contract price or by revision in the contract terms instead of by recapture or refund. An amendment clarifies these provisions and permits any combination of these methods to be used.

(6) OFFSET: The statute is now amended, allowing credit for Federal income and excess profits taxes paid or payable on the profits being refunded.

(7) EXEMPTIONS FROM RENEGOTIATION: The law provides for certain statutory exemptions as follows:

(a) The statute is amended permitting the Secretaries of the War, Navy and Treasury Departments and the Chairman of the Maritime Commission to exempt from renegotiation contracts or subcontracts at firm prices for specific periods if in their opinions the provisions of the contract or subcontract are otherwise adequate to prevent excessive profits.

(b) Also exempted from renegotiation are prime contracts and subcontracts made with other federal or local governmental agencies or a foreign government.

(c) The secretaries are authorized to exempt contracts from renegotiation when the profit can be determined with reasonable certainty when the original price is agreed upon, such as those for personal services, for the purchase of real estate or perishable goods or for commodities at a minimum price fixed by a regulatory body and contracts to be performed in a short period.

(d) Any contract or subcontract for the product of a mine, oil or gas well, or other mineral or natural deposit, or timber, which has not been processed, refined, or treated beyond the first form or state suitable for industrial use is exempted from the operation of the statute; and the secretaries are authorized by joint regulation, to define, interpret, and apply this exemption.

(e) Contractors and subcontractors whose aggregate sales for war purposes are less than $100,000 in a fiscal year are exempted.

OTHER CHANGES: The following clarifying changes have been made in the statute:

(a) Excessive profits may be eliminated through a reduction in the contract price or otherwise as the Secretaries of War, Navy and Treasury and the Chairman of the Maritime Commission may direct.

(b) A contractor or subcontractor may be required to refund excessive profits only if they have actually been paid to him.

(c) The secretaries may fix a period or periods for renegotiation in the contract.

(d) A contractor is liable for reductions in the subcontract price only if he receives the benefit of the reduction.

(e) The secretaries are required to recognize the properly applicable exclusions and deductions of the character allowed under Chapters 1 and 2 E of the Internal Revenue Code.

Of contracts to be refigured, Mr. Karker estimated that the War Department will be involved in 90 per cent, the Navy in 9 per cent, and the Maritime Commission in 1 per cent. He said even the War Department does not know exactly how many contracts it has made, but that the total number of companies concerned has been estimated at 25,000 to 35,000. He denied that the Price Adjustment Board is building up a large bureau.

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Increase Production — Save Time and Tools

FASTER cutting . . . longer tool life . . . less time wasted in grinding and changing tools . . . increased work quality—those are the advantages good cutting fluids, properly applied, can give you. Every machine in your shop, small, large and special, can be equipped with a Gray-Mills Portable Coolant System to make those advantages possible—*quickly* and *economically*.

Gray-Mills Portable Coolant Systems are engineered to supply controlled coolant flow with ample pressure to the tool and work; on single or multiple machine applications. There are six models with pump capacities ranging from 50 to 165 gal. per hour and complete with Flo-Bac pan, valves and fittings.

Whether your problem is modernization of older machines—equipping large, small and special tools for greater efficiency—or a standby coolant system for emergency—Gray-Mills Portable Coolant Systems are the answer . . . and you can get them quickly! Prices range from $39.50 to $99.50.

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Gray-Mills Complete Coolant Service includes the Flo-Bac line of quality cutting fluids. Four types to cover practically every requirement. Available in 3 gal. to 55 gal. wood or steel containers. Immediate delivery from your distributor or our plant.

Complete Portable Coolant Systems
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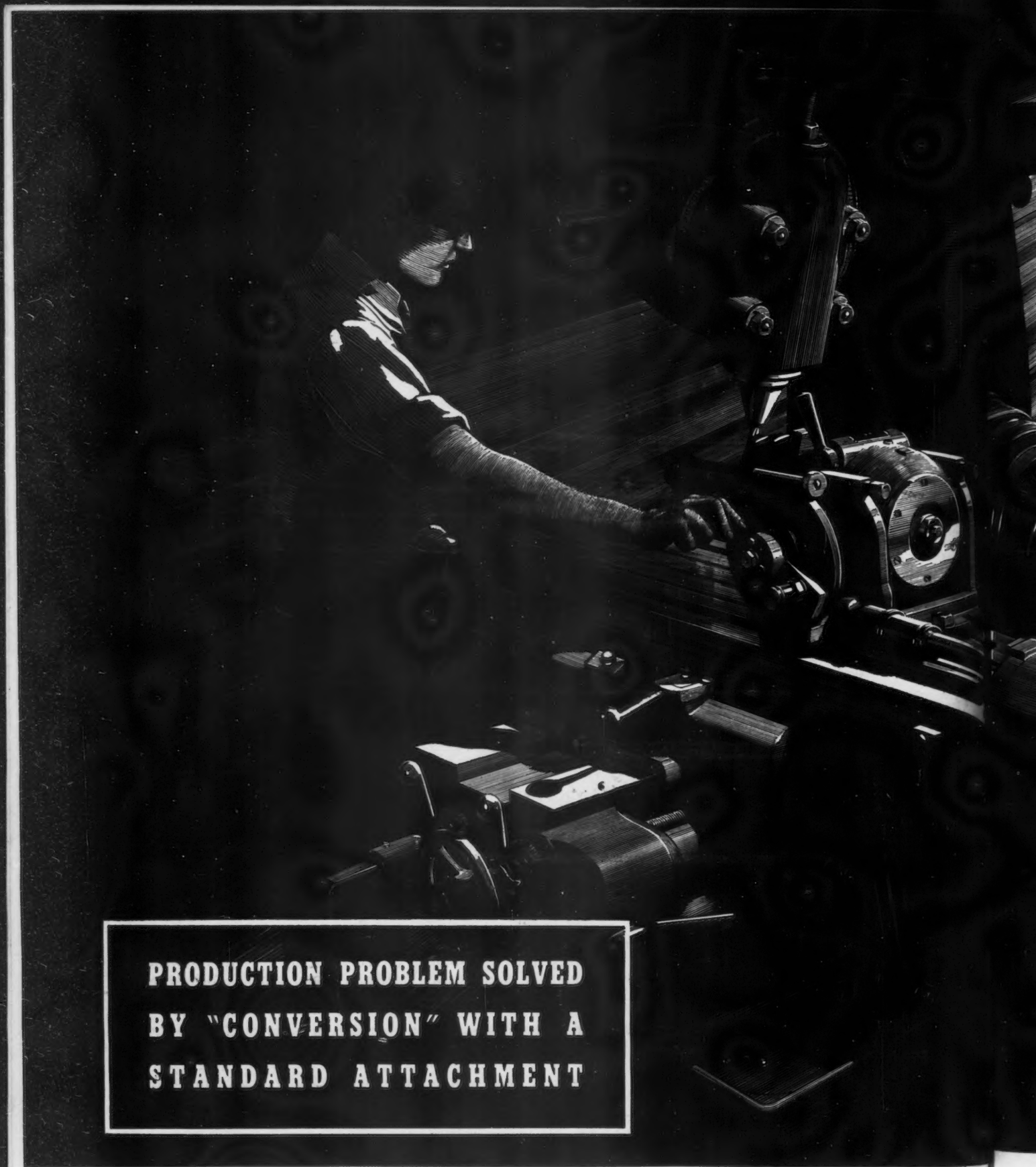
GRAY-MILLS CO., 227 W. Ontario St., Chicago, Ill.



PRODUCTION PROBLEM SOLVED BY "CONVERSION" WITH A STANDARD ATTACHMENT

Here is another instance where a standard Milwaukee attachment cracked a troublesome production problem.

Wartime secrecy demands that we do not reveal the name of the plant concerned and the machining operation involved, but the basic facts can be presented.

A large manufacturer was faced with the problem of vertical milling tank parts for a new production schedule. His vertical milling machines were all busy on other jobs and his schedule would not allow sufficient time for the purchase of additional vertical millers. But he did have some horizontal milling machines which could be quickly adapted to vertical milling.

The manufacturer wired our Emergency Production Service Department. One of our field representatives recommended and arranged for prompt delivery of some Universal Milwaukee Milling Attachments which quickly converted his plain milling machines to vertical mill-

Milwaukee MACHINE

EMERGENCY SERVICE FOR EMERGENCY PRODUCTION PROBLEMS

. . . WHAT TO DO WHEN YOU WANT HELP

The Emergency Production Service Department of Kearney & Trecker Corporation can prove of real value to you when you're on the spot with a production problem. Because they are specialists in milling operations . . . because they know how to get the most in performance — extend the range of application and usefulness of milling machines with standard attachments and accessories, the men in charge of Emergency Production Service are sure they can help you, just as they have helped others faced with production problems.

To avail yourself of their services, all you need do is pick up your telephone and send a wire, stating your problem to the Emergency Production Service Department, Kearney & Trecker Corporation, Milwaukee. Immediately upon receipt of your wire, arrangements will be made to have a trained field representative contact you at once. Depending upon the nature of your problem, he will provide you with complete technical information or call directly at your plant and make his recommendations there.

This service has been established and is maintained for your benefit — to aid you in your war effort. We urge you to use it.

★ ★ ★

ing, as shown above. Naturally, the manufacturer was able to get into production in short order, without delay.

This is but one of many success stories in our files concerning the application of standard attachments and the part they played in solving production and machine shortage problems. Write for full information.

KEARNEY & TRECKER CORPORATION
MILWAUKEE, WISCONSIN

Kearney and Trecker has just completed a new booklet on the "Right and Wrong" of milling practice. You may get your copy FREE by writing to Department C.

KEARNEY & TRECKER
CORPORATION

E T O O L S

Recovery Program For Steel Charted

• • • **Familiarity with** the steel recovery program of the WPB will be advantageous for metal working officials. It is expected that several weeks will be required for the government's recovery organization to be set up and compile the information it needs, but as time goes on the program promises to help relieve the tight steel situation.

Primary objectives of the program are as follows:

1. To facilitate the movement of inventories which are idle or excessive into plants which can use this steel in the "as rolled" form for war production work. The Pittsburgh, Pa., general offices of the Steel Recovery Program groups will serve all holders and consumers of steel as a national clearing house for the redistribution of iron and steel products. Present holders will be solicited and encouraged to use their own initiative in trying to dispose of their present inventories. The recovery program groups will act only as liaison to help locate such buyers and sellers and put them in touch with one another.

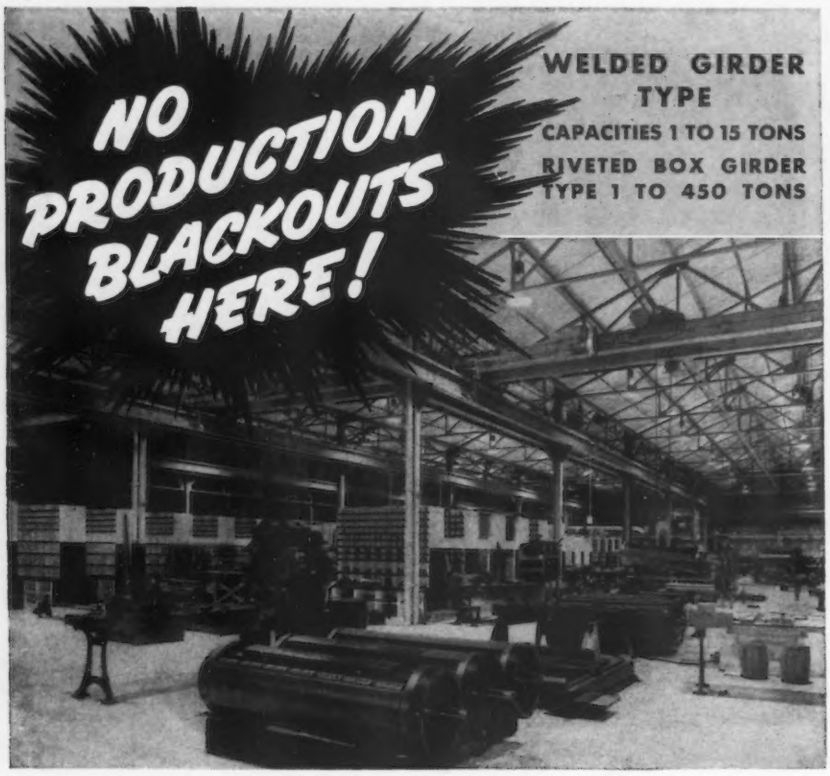
2. To locate and redistribute non-assembled, partially or wholly fabricated products needed for war purposes. Every effort will be made to redistribute and utilize these materials in their present forms; but, where use of products in their present forms is not practicable, these idle and excess inventories will be redistributed by government purchase for rerolling or remelting.

Where products are redistributed in their present forms by direct transactions between sellers and purchasers, the sellers will receive as nearly as is practical the full prices originally paid. For products sold for stockpiling to be used in their "as is" form, or for rerolling, the government will pay going market prices. If it proves impracticable or impossible to find private purchasers for idle and excessive products, or to stockpile or reroll such products, the government is prepared to buy or requisition them for remelting. In cases where the Government buys or requisitions idle or excessive products for remelting, the prices paid will be substantially above scrap prices, but less than current market prices or values estimated by the holders. The Government is interested in purchasing only such items as may be urgently needed for the war effort and only after every attempt has been made by the holders and the WPB to dispose of the materials in their existing form. Obviously, if such materials cannot be sold in their existing forms, there is no sound basis for evaluating them at full market prices.

When finally set up, some weeks in the future, the Steel Recovery Groups will be able, from complete, classified up-to-date inventory records, to inform purchasers where urgently needed items can be obtained and facilitate their movement from holders to purchasers. Buyers will not need to contact Washington either for materials or authority to buy them; all records and authority for material distribution will be in Pittsburgh.

All of the activity and practically all of the personnel of the Available Stocks Unit of the Iron and Steel Branch in Washington, has been transferred to Pittsburgh and absorbed by the Steel Recovery Section, Iron and Steel Branch, WPB in Pittsburgh.

Office space has been established at 5835 Baum Boulevard, in Pittsburgh. So far, only the



There are no costly delays in production when Shepard Niles Cranes are on the job

• Production, which is so vital to our National Defense Program, is being increased with electric cranes and hoists. Shepard Niles, because of their diversified line of material handling equipment, are saving their customers many valuable days and dollars by adapting standard cranes and hoists to meet special material handling applications.

SHEPARD NILES CRANE & HOIST CORP.

A COMPLETE LINE OF CRANES & HOISTS

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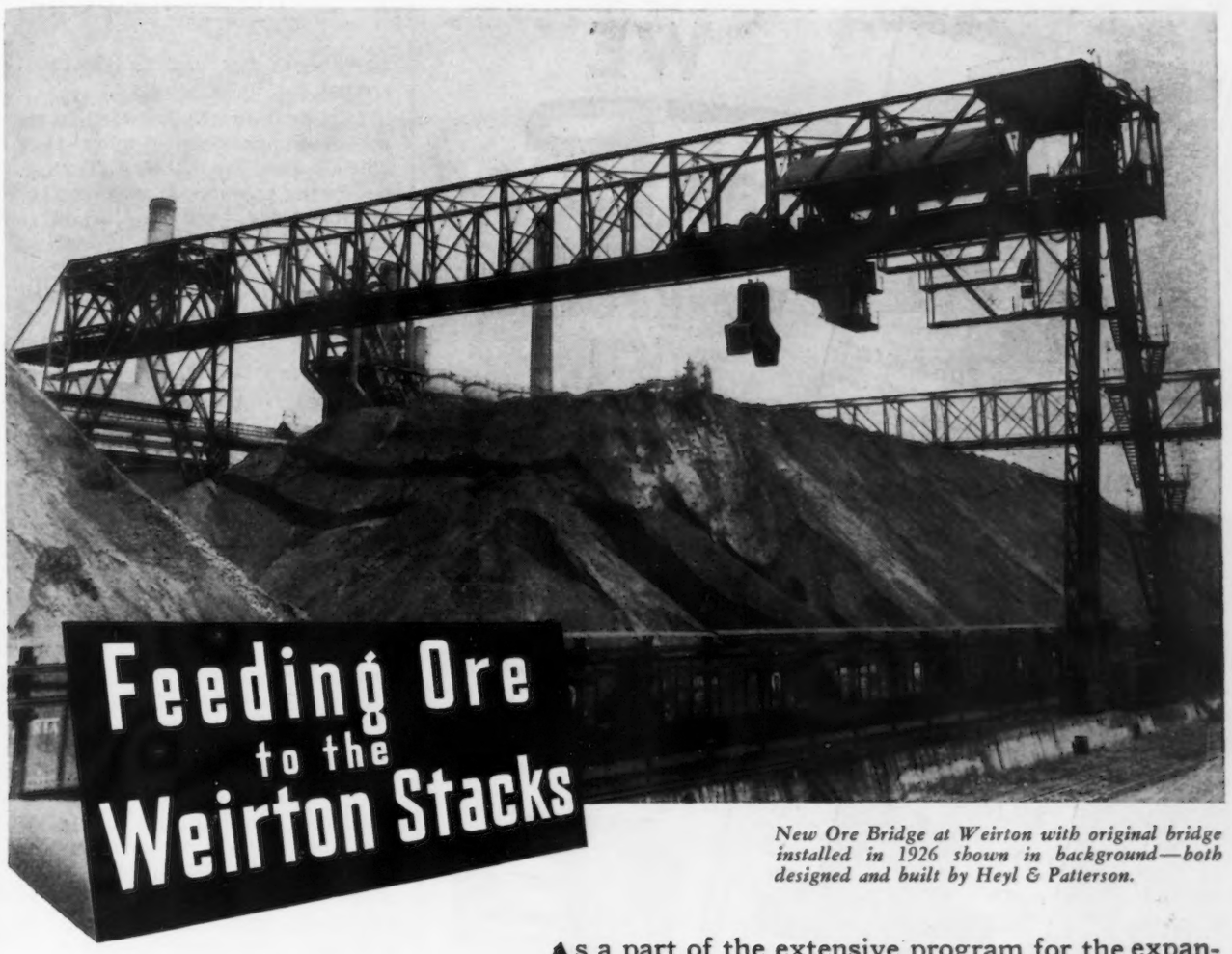

Feeding Ore to the Weirton Stacks

New Ore Bridge at Weirton with original bridge installed in 1926 shown in background—both designed and built by Heyl & Patterson.

As a part of the extensive program for the expansion of its blast furnace capacity, Weirton Steel Company recently placed in operation a new ore bridge designed and built by Heyl & Patterson.

Essentially of the same dimensions and running on the same tracks as the original bridge installed in 1926 by Heyl & Patterson, this new structure includes many advancements in design and construction. Built into it are extra sturdiness, the latest safety features, greater ease of control, new provisions for low maintenance, making it the most modern equipment of this type serving the industry today.

Because of such engineering leadership in the development of ore handling facilities Heyl & Patterson is engaged in the construction of six other ore bridges and three railroad-car dumpers for various blast furnaces now being rushed to completion.

H & P PRODUCTS
FOR THE
STEEL INDUSTRY

ORE BRIDGES - SKIP HOISTS
RAILROAD CAR DUMPERS
PIG CASTING MACHINES
COAL and COKE HANDLING PLANTS
BOAT LOADING and UNLOADING PLANTS
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NEW
Cable-Cored
V-BELTS
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NEW BLACK JACKETS
"Neutralized" Cable-Cores
Uniform Flexibility
Tailored to the Grooves
New, groove-gripping jackets. Cable-like cords in neutral section with a special extensible section above and compression section below — belts cured in precision molds.
Sheaves
Medart Sheaves have smooth side, correct size V-Grooves for a balanced, smoother running V-Drive.
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PILLOW BLOCKS
"SS" and "TS"
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Medart-Timken Type "SS" and Type "TS" Bearings —straight and taper sleeve—are self aligning in both Straight Sleeve Type is adapted to general purpose ap- Non-expansion and Expansion Types . . . The plications—wherever minimum friction is desired in the mechanical transmission of power . . . The Taper Sleeve Type is suited to high speeds and shock loads
GEARS ! Any Kind
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Train Power
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MORE
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Now as never before you must make the most of every piece of equipment. Why not let us help you? Our line of complete power transmission equipment . . . . our 60 odd years of experience . . . our staff of expert transmission engineers — All are at your service.
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nucleus of the organization personnel has been selected.

Certification of inventory forms are being mailed to more than 200,000 possible holders of steel. *Holders of inventories who have not received this form are urged to write War Production Board at 5835 Baum Boulevard, Pittsburgh, for a copy* as it is the basis for all future mailings in the formalized steel programs.

Inventory forms will be mailed about Nov. 1 to stainless steel holders. It is probably wishful thinking to hope that these forms will be returned, recorded and completely tabulated for ready reference before the first part of December, if then.

Because of the physical impossibility of analyzing, pricing and recording all types of steel at the same time, programs will be handled one at a time. Forms for reporting inventories of each type of steel will be mailed approximately a week to ten days apart, or just as rapidly as this data can be recorded. It appears unlikely that the program can begin to reach the peak of performance until after the New Year. When it is realized that some 200,000 inventories, involving millions of separate items are expected, it should be apparent that the paper work alone is a gigantic undertaking.

(The war effort also is in great need of inventories that are now in non-assembled, partially or wholly fabricated forms. Holders of large inventories in this category are urged to contact the WPB in Pittsburgh with the thought in mind that they may be able, by special purchase of these materials, to put them into the war production effort immediately.)

It is expected that stock lists of available items will be mailed to persons requesting them in all branches of the armed services, War Production Board, steel warehouses and to others specifically requested by the services. When a prospective purchaser is referred by the Pittsburgh office to a holder, the inventory card of that holder will be temporarily withdrawn from the files until sufficient time has elapsed for consummation of the transaction. Holders and purchasers will be required to report promptly about their transactions so that the inventory records will be accurate.

Three separate groups of individuals are involved in the administration of this program, each charged with full responsibility for certain parts of the work. The organization set-up and functions of each group may be described briefly, as follows:

1. MATERIALS REDISTRIBUTION BRANCH (which recently absorbed the former Inventory and Requisitioning Branch) has a Steel Recovery group in Pittsburgh which is headed by Thornton E. Stokes as Chief. This branch formulates the programs; sends forms to holders upon which it is *mandatory* that inventories be reported in detail; establishes the price the Government will pay for materials that may be purchased or requisitioned under the authority of the Materials Redistribution Branch; keep an up-to-date record of inventories nationally and make them available to the Iron and Steel Branch Section for disposition.

2. THE IRON AND STEEL BRANCH has a Steel Recovery Section in Pittsburgh, headed by C. H. Bradley as Chief, which has the sole and undivided responsibility for the disposition of materials. This section will attempt to move items from one holder to another in "as is" form wherever possible; decide whether material can or cannot be used promptly in war production in its present form and whether it should or should not be purchased from the holder and allocated to scrap for remelting into usable materials.

3. THE STEEL RECOVERY CORP., with George L. Stewart as president, is the fiscal agent. It is a private corporation, an agent of Metals Reserve Co.—a federal corporation. The Steel Recovery Corp. will execute purchases and sales contracts and absorb the losses which are to be expected in a national operation of this magnitude.

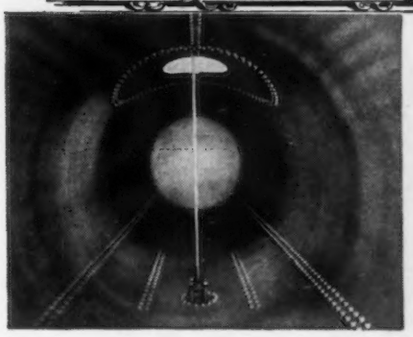
Book on "Surface Finish" Published by A.S.M.E.

• • • **An American edition** on "Surface Finish" originally prepared as a research report of the Institution of Production Engineers, Great Britain, has been produced in the United States by the American Society of Mechanical Engineers, 29 W. 39th Street, New York. The original text was written by Dr. George Schlesinger, director of the research department of the institute.

Much of the information contained in the book refers to measurements made with American instruments and draws a great deal on American publications. A feature is the voluminous tables of results of surface finish tests on a wide variety of objects. A chapter on the influence of the scratching action of the stylus of tracer instruments is a phase of the subject covered in the book that has been largely overlooked in American papers. The book, which contains 232 pages, is obtainable from the A.S.M.E. at $3.25.

A NAME EVERY ENGINEER SHOULD KNOW

Amercoat



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Tank cars, lined with *Amercoat,* which formerly carried bulk shipments of fine wines now transport essential chemicals to war industries. The same *Amercoat* lining which protected the delicate flavor of wines from contamination now protects these same tank cars from corrosion caused by more powerful chemicals.

Amercoat is odorless, tasteless, chemically inert and dielectric to a high degree. All *Amercoat* products are compounded of inert synthetic resins, but each is modified and pigmented to best meet stipulated problems.

Tell us *your* problem... and we'll answer it with *Amercoat*... or tell you *Amercoat* is not the answer.

COLD-APPLIED ON METAL OR CONCRETE

Amercoat has successfully solved problems of corrosion or contamination in the Chemical, Petroleum, Maritime, Food and many other industries. Write for Illustrated Bulletin which gives complete details.

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Prevent Injuries to Chains

for safety and longer service

The cumulative values of men and materials and machines created by war conditions make yesterday's *necessary* precautions *urgent* today. Chain, because subjected to excessive wear, should now be checked, protected and repaired more frequently than in normal times.

Tell your men these things to prevent injuries to the chains and accidents that might result from neglect or improper use:

1. Shake out twists, knots and kinks before loading.
2. Protect chain against sharp corners or edges. Use pads.
3. Don't expose chain to low temperatures. Don't use chain that has become extremely cold.
4. Do not expose chain to corrosive fumes or liquids.
5. The diameter of a sheave or winding drum for a short link chain should be 25 to 30 times the diameter of the stock used for the link. If long links are used consult the chain manufacturer regarding the size of drum or sheave. The shape and size of the groove should allow the chain to work smoothly.
6. Do not splice broken chain by fastening ends together with a bolt, or by passing one link through another and inserting bolt or nut to hold it.
7. Do not shorten one leg of a chain sling by taking up links and fastening them with nails thrust through links.

Other suggestions for making chain serve better, last longer and provide greater safety will be sent you on request.

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In Business for Your Safety

AMERICAN CHAIN & CABLE COMPANY, Inc.

BRIDGEPORT • CONNECTICUT

Steel Firms Report Third Quarter Incomes

• • • **Bethlehem Steel Corp.** and subsidiaries reported a net income of $7,444,870 after providing for taxes, a common share earning of $1.94, for the third quarter of 1942. This compares with $7,910,569 or $2.10 a share for the same period last year. Second quarter 1942 net was $6,070,913 or $1.49 a share. For the first nine months of 1942 the corporation declared a net profit of $19,686,471 or $4.94 per common share which compares with the 1941 net in the same period of $23,998,054 or $6.39 a share.

•

Inland Steel Co. and subsidiaries reported net income of $2,642,409, equal to $1.62 a share, in the three months ended Sept. 30. In the same period of last year, consolidated net income was $3,675,724, or $2.25 a share.

Net income in the nine months ended Sept. 30, 1942, was $8,113,890, or $4.97 a share.

•

Youngstown Sheet and Tube Co. reported today for the quarter ended on Sept. 30 net earnings of $2,459,652, bringing earnings for the three quarters of 1942 to $7,327,350. The earnings compare with $2,291,119 in the second quarter, $2,576,579 in the first quarter, and with $3,103,649 in the third quarter of 1941.

•

Wheeling Steel Corp. reports net profit for the quarter ended Sept. 30 of $839,659 after deductions for Federal income and other taxes, equal to 68c. a share. This compared with net profit of $1,878,355 or $2.50 a share in the corresponding 1941 period. For the nine month period ended Sept. 30, net profit was $2,835,307 or $2.59 a share, compared with $6,567,551 or $9.10 a share.

•

National Steel Corp. reports net earnings, after all charges, including provision for depreciation and depletion, interest charges and Federal taxes, for the quarter ended September 30, of $2,838,883.78, equal to $1.29 per share on 2,205,667 shares. This compares with net earnings of $3,200,452.53, equal to $1.45 per share on 2,204,667 shares, in the similar period of 1941, and with net earnings of

$2,750,444.85, equal to $1.25 per share, in the quarter ended June 30, 1942.

Net income for the nine months ended Sept. 30, 1942, amounted to $8,265,166.11, equal to $3.75 per share on 2,205,667 shares, compared with net income of $12,922,-271.57, equal to $5.86 per share on 2,204,667 shares in the first nine months of 1941.

•

Rustless Iron and Steel Corp. announced for the nine months to Sept. 30: Net profit, after $5,156,-000 provision for Federal income and excess profits taxes, $1,887,-425, equal to $1.96 a common share. Net profit last year was $1,710,200, or $1.77 a common share, after Federal tax provision of $3,676,000.

•

Pittsburgh Steel Corp. announced a consolidated net profit this week for the three months ended with September, of $502,-

Wide-World Photo

LEVELING-OFF: Some smart lad on the construction work at Fort Lewis, Wash., decided that electricians engaged in wiring mess halls and barracks did too much traveling up and down step ladders. He suggested stilts, which after a few test flights, most of the workmen handled with ease. It does save steps but the stilt-walkers say it feels funny to walk normally again.

Paving the Way for the Paratrooper...

KEYSTONE Wire

The bombs that "soften up" the Paratrooper's objective area contain vital wire parts. Minute-by-minute contact with supporting forces depends on miles of field, radio and telephone wiring. The very plane which carries him contains almost innumerable construction items made of wire.

Thus do many thousands of WIRE products play their essential "fighting" roles — in planes, guns, tanks, ammunition — and far behind combat zones, in ships and services of supply.

Victory comes first. To that, the entire production facilities of Keystone are devoted. These facilities are backed by 53 years of wire making experience . . . to help assure the right wire for each job — in war as in peace.

FIELD COMMUNICATIONS

KEYSTONE STEEL & WIRE CO.
PEORIA • ILLINOIS

Special Analysis Wire for All Industrial Uses

SAMSON SPRING WIRE
KEYSTONE STEEL & WIRE CO. PEORIA, ILL.

Business Week Says-

Hammond

CYLINDRICAL FINISHING MACHINE

Faster Grinding

New methods of utilizing surface-coated abrasive belts instead of wheels is said to effect striking savings • some results cited—

. . . A maker of ammunition cases . . . claims production is at 350% former capacity and abrasive cost is down 25%.

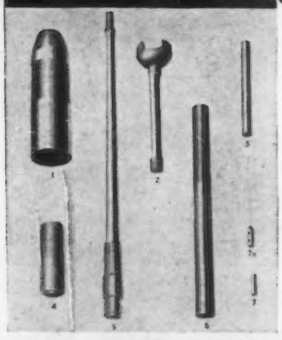
. . . Airplane governor steel ball swivels, maker claims a 50% increase in production, thereby opening a shop bottleneck.

. . . Plant producing machine gun parts boosted output 25 to 55 pieces per eight-hour shift.

. . . The major advantage claimed is reducing the polishing cost per piece by increasing the production rate.

Showing patented pressure roll with abrasive belts leading to backstand.

HERE ARE A FEW OF MANY PARTS FINISHED ON THE HAMMOND "OD" CYLINDRICAL FINISHING MACHINES



FOR ¼" TO 9" OUTSIDE DIAMETERS

The Hammond "OD" (outside diameter) Cylindrical Finishing Machine, using for the polishing member various types of wheels or abrasive belts with backstand to finish the work, is the best means of higher production for you. Flexibility of the machine is controlled by special fixtures and adapters, designed and engineered by Hammond. If you have a problem in cylindrical shapes, send samples of pieces on which a finish is desired together with a finished piece for a complete engineering report. Do it today, don't delay!

Hammond Machinery Builders INC.

★★★ 1612 DOUGLAS AVENUE ★★★

KALAMAZOO • MICHIGAN

Eastern Branch—71 West 23rd Street, New York, N.Y.

986 after all charges, including $1,429,200 provision for State and Federal taxes and $580,000 as a retroactive wage increase were deducted.

The profit is equal to 56 cents a share. In the quarter ended on June 30 the net profit was $731,840, or $1.01 a share, while the net for September quarter of 1941, was $687,536, or 92 cents a common share.

For the nine months ended on Sept. 30 the net profit amounted to $1,880,160, or $2.42 a common share. In the corresponding period a year ago $2,366,395, or $3.37 a common share was earned.

•

Allegheny Ludlum Steel Corp. reported today consolidated net profit of $904,370 for the three months ended on Sept. 30 after all charges, including provision for Federal income and excess profits taxes of $3,654,000 and $716,000 for retroactive wage increases ordered by the War Labor Board. This is equivalent to 68c. a share on outstanding common stock.

•

Carpenter Steel Company declared for the September quarter a net profit, after Federal taxes and after setting up additional $300,000 reserve for undeterminable taxes and other contingencies, was $352,261, equal to 98c. each on 360,000 shares of $5 par capital stock. This compares with $545,624, or $1.51 a share for September quarter of 1941.

•

American Rolling Mill Co. reported a consolidated net profit for the third quarter of $2,740,098 of 1942 and at the same time authorized a dividend of 20c. a common share covering the final quarter of the year and a year-end dividend of 10c. Both will be payable on Dec. 16 to holders of record Nov. 16.

•

Lukens Steel Co. declared a dividend of 25c a common share for the 16 week period ending Oct. 10, the end of their fiscal year. Total dividends of $1.05 were paid for the 1942 fiscal year compared with 60c. a share in the 1941 fiscal year.

Carboloy Announces Visual Education Program on Carbides

• • • **Designed to expedite** the training of new workers in the use, care and handling of carbide tools, Carboloy Co., Inc., Detroit, is making available for general distribution a series of six 35-mm. slide films. Non-commercial in character, the films are designed for instructional purposes and are completely self-explanatory. They are intended to enable users of carbide tools to increase production, save time, reduce tool costs and tool consumption by a proper understanding of all the factors relating to their application.

The complete program of visual education comprises the six films and a copy of each of the films reprinted in a booklet for reference by the trainee following the showing of the film. Each booklet also contains appendix reference material and charts of value in the use and handling of carbide tools. The complete set comprises six slide films, covering, respectively the following subjects: What is cemented carbide? designing cemented carbide tools; brazing cemented carbide tools; chip breakers and their application; grinding single point carbide tools, and putting cemented carbide tools to work.

The films will be distributed by Carboloy at print cost for use by industrial concerns and educational institutions. Arrangements are also being made for free loaning of films to educational institutions through film libraries.

Accompanying the set of booklets in which the films are reproduced is a booklet which gives complete instructions for conducting training meetings at which the films are to be shown.

October Lake Ore Shipments Near 11,000,000-Ton Mark

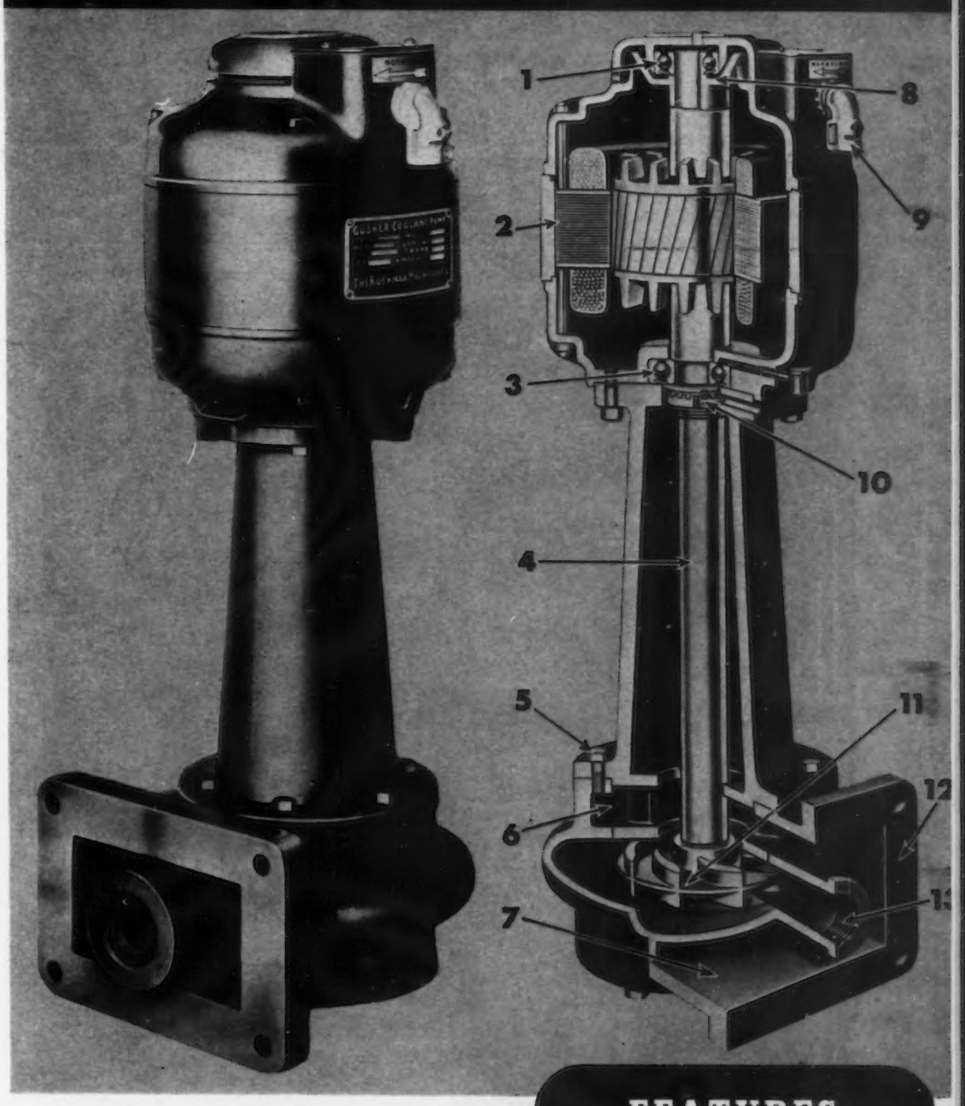
Cleveland

• • • **With the weather** at the head of the lakes moderating, the ore loading docks are expected to dump the last of the frozen ore that has tied up shipping most of this week. A large number of boats is in the Duluth-Superior harbor to load and unless there is a drop in temperature, dock officials believe they would be able to dump enough ore during the 48-hour period from Friday morning through Saturday for the lake fleet to pass the 11,000,000-ton mark for the month.

RUTHMAN

Gusher Coolant Pumps

THE OUTSTANDING COOLANT PUMP TODAY—



Quite a number of machine tool builders equip their new machines with Ruthman Coolant Pumps. Machine tool builders have doubled their output each year for the past 3 years. And yet even this favorable situation doesn't explain why so many Ruthman Coolant Pumps are made and sold.

The users of machine tools—appreciating the trouble-free performance of Ruthman Pumps — have stepped in and bought Ruthmans as replacements for other coolant pumps. And when they replace with a Ruthman Coolant Pump it's the last replacement they'll have to make.

FEATURES

1 precision ball bearing

2 standard interchangeable stator

3 precision ball bearing

4 rigid one-piece shaft

5 removing these screws permits lifting pump and motor assembly for inspection.

6-7 twin intakes are automatically cleansed when pump is throttled

8 internal louvers and revolving cup disc protect motor

9 conduct wiring connection

10 centrifugal lock nut and seal prevent moisture from reaching bearing

11 double acting impeller

12 heavy mounting flange cast in one piece with impeller housing

13 internal discharge thru center of intake eliminates outside piping

The RUTHMAN MACHINERY COMPANY • CINCINNATI, OHIO

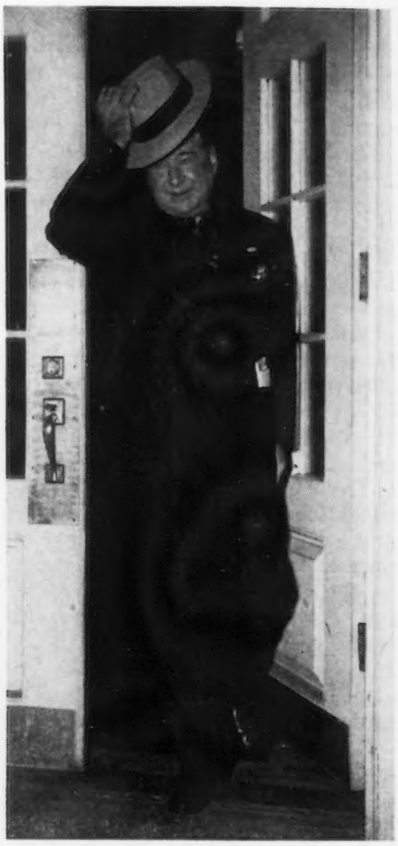
Higgins to Build C-76 Plane in Louisiana Shipyards

• • • **Andrew J. Higgins,** well known Louisiana shipbuilder and originator of the "black market" scandal in the steel trade a few months ago, has been told that he will receive a contract to build 1200 "Commando" planes for the War Department. It was explained that the contract has not yet been signed but that it was being negotiated and that Higgins would get it.

It was stated that the Higgins' shipyards could be used in part for plane building at once and that the balance of the yards could be converted rapidly. The type of plane Higgins will build is a plywood adaptation of the C-46, a standard "Commando," known as the C-76.

It is understood that Higgins was recommended for the job by Charles E. Wilson, former vice-president of General Electric and now an appointee of Donald Nelson's, in charge of war plane production.

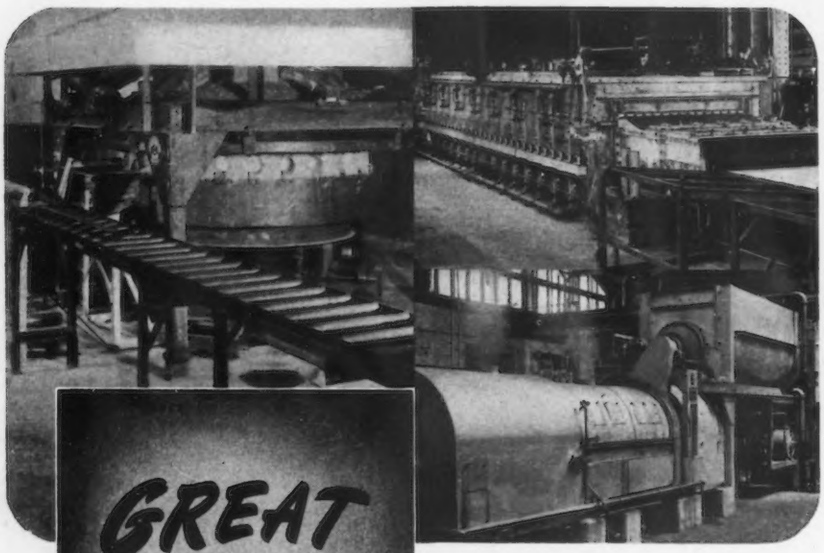
The grant of a contract to Mr. Higgins bears out the recent agitation for Higgins to play a bigger part in war production which was a by-product of the AFL investigation of the canceling of Higgins shipyard construction program.



ANDREW J. HIGGINS is shown leaving the White House after a 40 minute discussion with President Roosevelt on the subject of building freight planes last week. Quick action was apparently taken as Higgins is now credited with sure receipt of a contract for 1200 C-76 planes for the War Department.

Rustless Iron & Steel Earnings for Three Quarters

• • • **The Rustless Iron & Steel Corp.** has declared net earnings, for the nine months' period ended Sept. 30, of $1,887,425 after deducting federal income and excess profits taxes. This equals $1.96 earnings per common share. For the same period in 1941 the corporation earned $1,710,200 or $1.77 a common share.



GREAT FURNACES for ARMAMENT PRODUCTION

ROCKWELL
ELECTRIC AND FUEL FIRED FURNACES

AGAIN ROCKWELL ENGINEERS BOOST WAR PRODUCTION!

A new Rockwell Gas Fired Unit hardens, quenches and tempers high explosive shells in one continuous operation. A single operator places shells on the conveyor at the charge end of the hardening furnace —thereafter all operations are continuous. Both the hardening and draw furnaces are provided with automatic proportioning burners and control instruments so that any draw specified by the Ordnance Department may be easily obtained.

Shells are carried through both furnaces by an oil hydraulic pushing system with time cycle control. The method of quenching gives a very uniform hardness and minimizes any danger of soft spots due to vapor pockets or other causes.

If MORE PRODUCTION is your problem, write or wire us. Rockwell's wide experience in heat treating will help you.

W. S. ROCKWELL COMPANY
50 Church Street ● New York

Women's Sensitivities Create Industrial Problem

Cincinnati

• • • **With modest expansion** of female employment in district machine tool plants in the last few months, the problems of sex idiosyncrasies in varying degrees have been added to the other pressures already on the management. Some foremen complain of the sensitiveness of women to ordinary corrections, or their inability to understand painstaking steps in the process of inspection, set-up and checking of tools. (*For a notable exception see page* 59.) Some comment is also heard of the irregularity of their attendance and their tendency to leave their jobs. These, of course, may be mere first adjustment reactions to the entry of women into what has long been considered the purely male domain and possibly the natural attitude of men always accustomed to handling other men.

Transportation of workers to plants, with gas rationing just a few weeks away in this area, also poses another problem for management. A large percentage of workers in local plants live in surrounding small towns and have been well satisfied with the situation so long as automobiles were available for quick and convenient transportation. Now the formation of transportation committees to assist in obtaining additional gas allowances is in progress, although uncertainty tends to unsettle morale.

Government Gets 93 Bids For 78-Ft. Wooden Barges

Cleveland

• • • **When the** government sent out requests for bids for the construction of wooden barges it didn't realize what a response there would be. District river equipment builders have been advised that contractors in 21 states submitted a total of 93 bids for these barges. The wood preserving division of the Koppers Co. offered to build a fleet of 30 of these carriers for $12,790 each. Other bids were received for lots of 30 to 50 but did not contain unit prices. Koppers plans to fabricate its order at the Carbondale, Ill., plant. The barges will be 78 ft. long and will be delivered knocked down to points designated by the War Shipping Administration.

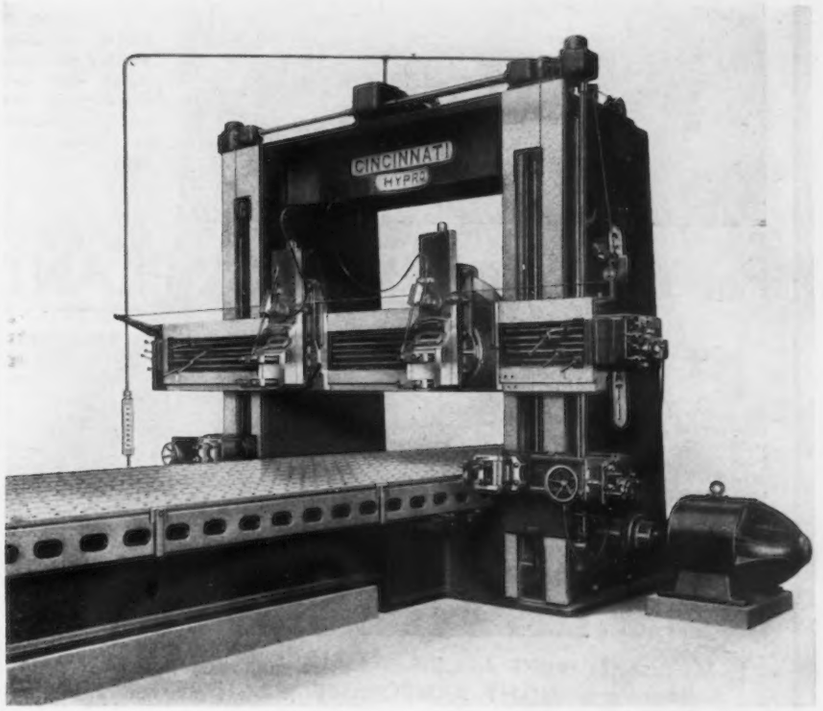
Blaw-Knox Gets Order For New Detinning Drums

Pittsburgh

• • • **Blaw-Knox Company** has been awarded a contract amounting to approximately $1,000,000, by the H. K. Ferguson Co., for the design and fabrication of 14 new type detinning drums for use in salvaging tin from cans. This contract represents a part of that awarded recently to the Ferguson Company by the Defense Plant Corporation for six detinning plants for salvaging cans.

The drums will be cylindrical in design, each with a diameter of 20 ft., and a length of 28 ft. Shredded tin cans will be fed into one end of the drum and, after passing through a chemical solution which is kept in motion by rotation of the drum, will emerge at the other end completely detinned.

CINCINNATI
HYPRO PLANERS



• This 120" x 96" x 44' Double Housing Planer can do big planing jobs quickly and economically. The herringbone gearing assures smooth flow of power.

• Massive pyramid housings provide the rigidity needed for accurate work. Bed ways are more than double the length of the table. All slides, tool blocks, clapper boxes and clamps are made of Meehanite and heat treated, greatly increasing their strength.

PLANERS · PLANER MILLERS · BORING MILLS
THE CINCINNATI PLANER CO.
CINCINNATI, OHIO

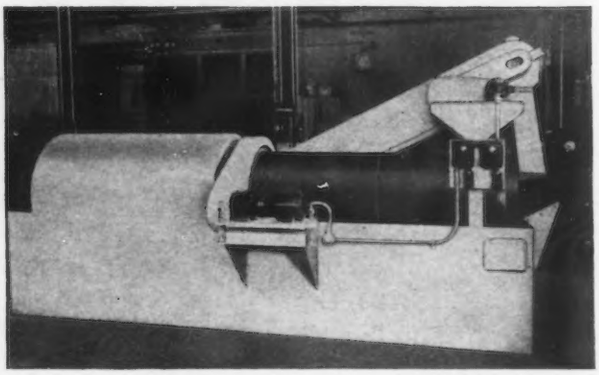
George H. Johnson New Head of Tools Division

Washington

• • • **George H. Johnson,** president of the Gisholt Machine Co., Madison, Wis., has been appointed as the new director of the WPB tools division and will assume his new duties about Nov. 23. John Chafee, formerly vice-president of the Brown & Sharpe Mfg. Co., Providence, R. I., has been appointed deputy director of the tools division. Mr. Johnson will succeed George C. Brainard, who, as stated in THE IRON AGE of Oct. 22, has resigned and will resume his duties as president of General Fireproofing Co., Youngstown, Ohio. He will remain as head of the WPB tools division until Mr. Johnson takes over the duties of that office.

Mr. Brainard's resignation was formally announced by WPB last Saturday by Ernest Kanzler, WPB director general for operations.

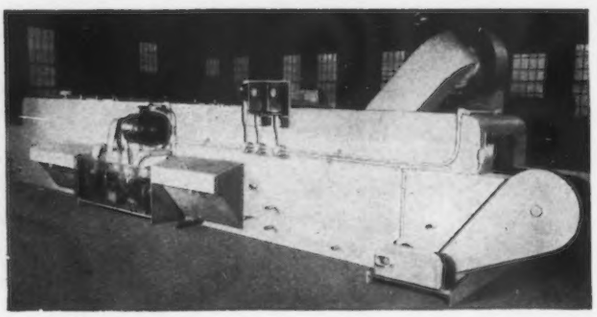
Simultaneously WPB Chairman Donald M. Nelson announced the resignation of A. I. Henderson, as deputy director general for operations, who will accept a commission in the Army. Mr. Henderson said in his letter of resignation to Mr. Nelson that the recent organizational changes make it possible "for me to get away at this time without feeling that I am running out on the job."



★ RANSOHOFF CONTINUOUS SAWDUST DRIER . . . dries polished and burnished work and eliminates all the work of handling and drying sawdust.

Put 'em to work IN YOUR PLANT

★ RANSOHOFF CONVEYOR-TYPE WASHING, RINSING AND DRYING MACHINE . . . used for cleaning airplane parts. It washes and rinses large work on conveyor or smaller, fragile work in trays or baskets.



Makeshifts won't do—hit-and-miss methods are costly —there's a RIGHT RANSOHOFF MACHINE for your jobs that need

washing . . rustproofing . . sawdust-polishing
rinsing . . parkerizing . . drying . . burnishing

RANSOHOFF LABOR-SAVING EQUIPMENT FOR THE SURFACE TREATMENT OF METALS

If you need special equipment Ransohoff Engineers will design and build it for you. Just write us!

N. RANSOHOFF, Inc.

Township & Big 4 RR — CINCINNATI, O.

380-MILLION POUNDS: Enough to mated 380-million lb. of scrap is to salvage for the scrap campaign has a very well organized salvage thing from outdated rubber stamps ped to crush, separate, bale and are two members of the salvage ings into a huge collection bin.

Perley New Director of Tank Output in Canada

Toronto

• • • **E. C. Perley** has been appointed director of tank production branch of the department of munitions and supply, C. D. Howe, Minister, announced. Mr. Perley formerly was chief production engineer in this branch. Mr. Perley, born in Wolseley, Sask., was graduated in engineering from McGill University, Montreal. He joined the firm of English Electric Co. of Canada, Ltd., St. Catharines, and became general sales manager.

Canning Groups Discuss Further Conservation

Washington

• • • **Further conservation** of tin, rubber and other critical materials was discussed here recently at three WPB Canning Industry Advisory Committee meetings and two specialized industry conferences. Facts obtained at the meetings will be used by WPB as a basis for establishing a specific conservation policy. The industry Advisory Committees were: Non-Seasonal Canned Foods (infant food and soups); Canned Fruits; and Canned Vegetables.

Meanwhile, William W. Fitzhugh, deputy chief of the WPB Containers Branch has announced organization of several technical committees in the containers industry to assist in the development of substitutes for tin, steel, and other critical materials used in the industry.

fill 100 average freight trains, an esti-what the General Electric Co. expects out of their own plants this year. G-E department that is gathering every-to obsolete power plants and is equip-otherwise prepare scrap. Shown here department dumping machine turn-

JESSOP

Aircraft Sheets and Strip
Alloy Spring Steel
Bell Crank Steel
Chain Steel
Chrome Vanadium Spring Steel
Clip Steel
Clipper Blade Steel
Clock Spring Steel
Creasing Rule
Cutlery Steel
Diaphragm Steel
Ejector Blade Steel
Flexible File Steel
Knife Blade Steel
Link Steel
Manicure File Steel
Metal Band Saw Steel
Paragon Wire
Penn Steel
Plane Blade Steel
Rule Steel (Rulers and Scales)
Scoring Rule Steel
Skate Steel
Spring Steel
Square Blade
Stainless Steel
Surgisteel
Tone Bar Steel
Tool Steels
Wood Band Saw Steels

COLD ROLLED Steels

Jessop produces a wide analysis range in Cold Rolled Untempered products commercially available in high carbon steels, Special Alloys, Stainless and Tool Steels. Jessop is able to produce under accurate metallurgical control Hard, Half-Hard, Quarter-Hard or Fully Spherodized Annealed conditions—which ever is best suited for your exacting requirements. This wide range of tempers is controlled by varying degrees of cold work or annealing.

SIZE RANGE—(Furnished in coils or cut lengths, square sheared or round mill edges)

Width	Thickness
1/4" to 2"	.009/.125"
2" to 4"	.020/.125"
4" to 5 1/2"	.020/.125"
*6" to 28" max.	.025/.250"

*Cut lengths only — 6 to 8 ft. maximum

Write today regarding your Cold Rolled Untempered Steel problems. We will give your inquiries prompt consideration and our very best attention.

JESSOP STEEL COMPANY
WASHINGTON, PENNA.

JESSOP STEELS
for America and her Allies

Truscon Steel Building Tank Landing Barges

Cleveland

• • • **Truscon Steel Co.'s** Youngstown plant is prefabricating tank landing barges and shipping the subassemblies to eastern shipyards, according to Rear Admiral Milo F. Draemel, commandant of the Fourth Naval District, who spoke at the launching of the first vessel in Philadelphia. The Navy did not make public the ship's specifications except to indicate that the Truscon job was for a large ship designed to carry troops, tanks and other mechanized equipment in offensive operations against enemy coasts, and that the ship is of a shallow draft. This would indicate that it is of a type similar to tank landing barges being built by Higgins at New Orleans, or the larger barges such as those being built by Dravo in Pittsburgh.

R-S
QUALITY PRODUCTS
SINCE 1908
A Sign of RELIABLE
Heat-Treating SERVICE
This R-S name plate on an industrial heat-treating furnace is more than a means of identification—it is the stamp of approval of R-S Engineers.
It guarantees top notch production due to proper design, erection and operation.
It guarantees that the entire equipment is geared to individual plant conditions and the type of heat-treated product involved.
It assures minimum fuel consumption and the conservation of manual effort with maximum safety.
For heat-treating efficiency and economy, today or tomorrow, specify R-S Industrial Furnaces.
If you have an industrial heat-treating problem, write on your company letterhead for helpful suggestions.
FURNACE DIVISION
R-S PRODUCTS CORPORATION
4524 Germantown Ave., Philadelphia, Pa.
R-S Furnaces of Distinction
BUY WAR BONDS

Last Minute Priorities

Warehouses Must Refuse Orders Lower Than AA-5

Washington

• • • **Steel warehouses,** which for some time have been permitted to make deliveries on A-1-a and higher rated orders, were instructed Oct. 30 by the WPB Director General for Operations to accept no orders rated lower than AA-5.

This action, taken to prevent the serious depletion of warehouse stocks of iron and steel products, is contained in Amendment No. 7 to M-21-b. The amendment lists the following exceptions to the above provision:

1. For essential repair and maintenance purposes, alloy iron and alloy steel can be delivered on A-1-k or higher rated orders. Such deliveries are restricted in any one quarter to 3 per cent of the warehouse's quota for alloy (including stainless) and tool steels, and 5 per cent of the quota for other iron and steel products (or 150 tons per quarter if that figure is greater).

2. Plate ends and short sheets, commonly known as wasters, can be delivered on A-1-k or higher rated orders.

3. Tubular products and wire rope can be delivered on A-10 or higher rated orders.

4. Nails, bale ties and similar wire products, as well as roofing and siding sold primarily to the farm trade, can be delivered without a preference rating.

The amendment continues the provisions of the order which forbid delivery of carload lots from warehouse, stocks, except in the case of mixed carloads. The amendment also adds a specific provision emphasizing the right of a warehouse to appeal where substantial deliveries, though less than carloads, would reduce its inventory to an extent which would hamper its ability to service the smaller requirements of many customers.

•

Authority Given Canada

Washington

• • • **Authority to issue** individual preference ratings to Canadian firms without special authorization from Washington has been dele-

gated to the Director of the WPB Canadian Priorities Review Division by an administrative order announced on Monday by the Director General for Operations.

The power delegated by the order is limited to assignment of ratings on PD-1-a certificates where the amount of materials involved is less than $500 (United States currency). The order expressly forbids the assignment of ratings under the new procedure to Canadian companies operating under PRP, except as prescribed by Priorities Regulation No. 11.

•

A. C. Brown Deputy Chief Of Iron and Steel Branch

Washington

• • • **Alexander C. Brown,** newly appointed deputy chief of the WPB Iron and Steel Branch, brings to WPB experience he gained as chief of the crane section of the War Industries Board in 1917-18.

Mr. Brown is vice-president of the Cleveland Cliffs Iron Co. in which capacity he has served for the past eight years. Former president of the Industrial Brown Hoist Corp., Bay City, Mich.

•

Farm Machinery Frozen Until Quotas Are Set

Washington

• • • **To remain** in effect until state and county quotas are established as a basis for a permanent rationing order, all new farm machinery and equipment except repair parts were frozen on Nov. 1 under Temporary Rationing Order B announced by Secretary of Agriculture Claude R. Wickard.

The freeze order covers two main types of farm machinery. The first — Schedule I — includes most of the heavier labor saving machines which are important as a result of the farm labor shortage. Dealers, distributers and manufacturers, under the freeze order, may not sell or transfer any of the 144 items listed in this schedule.

The second — Schedule II — includes miscellaneous items of farm machinery and equipment, generally requiring less metal in manufacture. The order will stop transfer of these items by distributers and manufacturers, but dealers, other than distributers and manufacturers, may sell for farm use items stocked.

Mordecai Ezekiel Assistant to Wilson

Washington

• • • **Mordecai Ezekiel,** former economic adviser to the Secretary of Agriculture, has been appointed executive assistant to Charles E. Wilson, WPB production vice-chairman, it was announced last Friday. Mr. Ezekiel has recently been on loan on a part time basis to the WPB Planning Committee.

Another personnel change in WPB came last week in the resignation of Merrill C. Meigs, deputy director of the Aircraft Production Division. Mr. Meigs was called back to the Hearst Corp. from which he has been on loan for the past two years. Donald M. Nelson, WPB chairman, said he accepted Mr. Meigs' resignation with particular regret.

Their Lives Depend On

"HOW MUCH...HOW SOON"

Frequent interruptions for repacking and replacement of gaskets and oil seals can be avoided by using quality materials at the start. GARLOCK quality products are helping industry maintain non-stop, all-out production schedules all over the country.

GARLOCK

THE GARLOCK PACKING COMPANY
PALMYRA, NEW YORK
In Canada: The Garlock Packing Company of Canada Limited, Montreal, Que.

U. S. Steel to Retire $30,000,000 Indebtedness

• • • **United States Steel Corp.** became the first major corporation to take advantage of the 10 per cent post-war relief provision of the Revenue Act of 1942 by calling for redemption on Dec. 31 of $30,000,000 of the corporation's serial debentures maturing in 1944 to 1948 and 1951, it was announced this week.

Still outstanding will be $32,500,000 of an original issue of $75,000,000 in debentures offered in 1940 and due from 1940 to 1955 including $2,500,000 of the series due on Nov. 1. Interest rates on the series range from 0.75 to 2.65 per cent.

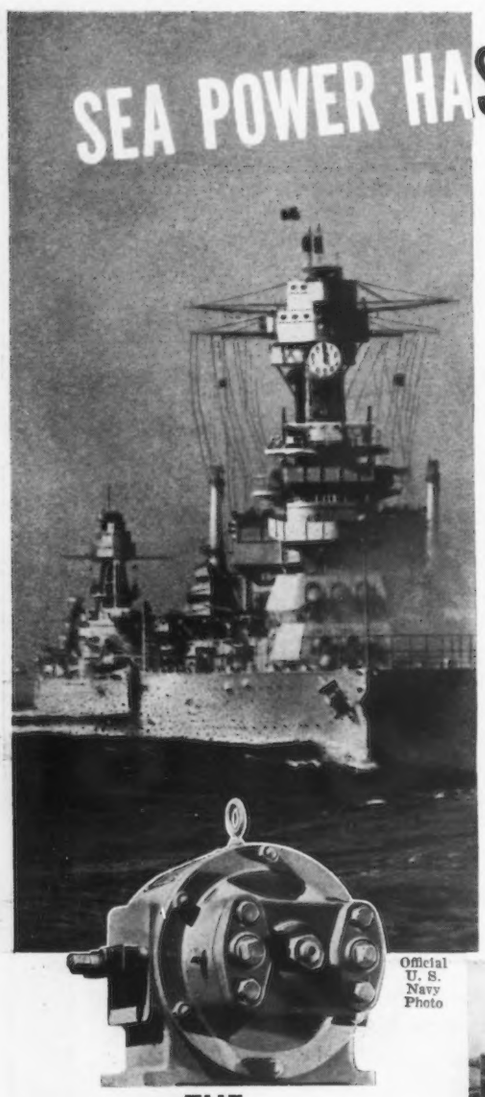
Debentures of the series called for redemption will be payable at the respective redemption prices and accrued interest on and after Nov. 2 upon presentation at the offices of J. P. Morgan & Co., Inc.

The post-war relief provision of the Revenue Act of 1942 provides for a refund of excess profits in an amount equal to 10 per cent of the tax paid and permits such refund to be used immediately to retire debt. The corporation may use $1.50 of its own funds for debt retirement for each $1 of refund to which it is entitled under the Revenue Act. No bank borrowing will be required in the redemption, it was learned.

SEA POWER HAS NEW JOBS

Hele-Shaw Fluid Power is also making good at new jobs

Machines have to make good at new jobs today. Hele-Shaw Fluid Power is helping them. Fluid Power is oil under pressure from a Hele-Shaw Pump. It powers many kinds of hydraulically operated machines and devices. Each Hele-Shaw pump is normally designed for a certain maximum pressure. A hydraulic press, for example, that is driven by a Hele-Shaw pump at a pressure of 2000 lbs. per sq. in. today, may tomorrow have to work at 3000 pounds pressure on a war job. Various types of Hele-Shaw pump controls make the change-over a work of a few minutes. The ease of selecting the right pressure for a job is an advantage of Fluid Power Operation. There are others our illustrated catalog is waiting to show you. Why not send for it?



Official U. S. Navy Photo

Steeping press for the cellophane industry uses Hele-Shaw Pump with a hand-operated Hele-Shaw GAM Control. Control regulates volume and pressure independently, eliminating need for auxiliary operating valves.

THE Hele-Shaw Fluid Power Pump

OTHER A-E-CO PRODUCTS: TAYLOR STOKERS, MARINE DECK AUXILIARIES, LO-HED HOISTS

AMERICAN ENGINEERING COMPANY

2410 ARAMINGO AVENUE, PHILADELPHIA, PA.

Tin Content Castings Prohibited in Canada

Toronto

• • • **G. C. Bateman,** metals controller, has issued a new order which prohibits, except by permit, any person in Canada from producing tin-containing castings except under alloy specifications. Mr. Bateman stated that the order is designed to conserve tin. "Since Pearl Harbor," he stated, "great strides have been taken by the metallurgists in the development of new alloys which conserve the more critical materials. Tin has been used in the past largely because of its non-corrosive qualities. It has been found in recent months that with much smaller tin content, entirely satisfactory alloys can be made."

Republic Sets Record

Cleveland

• • • **At 3 p.m.** Thursday, Oct. 29 Republic Steel Corp. exceeded its former monthly record in the production of steel. The previous record was made in March of this year and totaled more than 760,000 tons. During the nine months and 29 days of this year, Republic produced as much steel as Japan reported for its entire Empire over the period of one year.

Invention Wins Prize

Buffalo

• • • **Invention** by three Bell Aircraft Corp. workers of a device which checks operations of all metal equipment in airplane wings before they are installed on the chassis won them a $100 War Bond prize in the November contest for production improvements sponsored by the Aero Digest Magazine. The men are Vernon King, Robert C. Miller, Jr., and Edmund Klonowski.

Labor-Wage Orders Subject of Hot Controversy in Capital

• • • **This week's** view of the labor front was marked by a notable quiet on the part of the unions contrasted with a frenzy of activity in Washington over controversial labor questions.

Most of the official furor centered around McNutt's plan for occupational deferment of skilled work via a special technical board serving with the local draft boards and the cold reality of Byrnes' directive setting the $25,000 ceiling on salaries and dubiously affecting all salaries down to the $5,000 level.

Chairman of the War Manpower Commission, McNutt, originally announced a plan whereby the draft's drain on the technical workers and skilled manpower of the country would be combatted by means of occupational deferment (supposedly based on the worker keeping his war job after deferment). This, Mr. McNutt said, could be done in two ways. First, by introducing job and occupation analysis in connection with the operations of the local draft boards and second, by changes in the present Selective Service appeals machinery.

Meanwhile the Tolan committee investigating defense migration put forth the suggestion that the matter of occupational deferment should be handled by separate boards. McNutt disagreed heartily with this suggestion stating that he saw no escape from combining the duties of the draft boards with any such boards as may be created and further stated his belief that combined boards would function more satisfactorily. (It is not unlikely that Mr. McNutt also had in mind the mushroom growth of the innumerable bureaus and agencies already existing in our government.)

McNutt has further stirred the anger of various factions in Washington through his demands for national labor-controlling legislation as well as his recent announcemet of a WMC inspired directive, soon to be issued by the Department of Agriculture, which would more or less freeze farm workers, imply occupational deferment for many types of farm workers, stabilize farm wages and generally put the farmer under a strict form of regimentation.

Both of these issues have stirred the wrath of labor-management powers and the farm blocs. Trouble started at home for McNutt when the Labor-Management Policy Committee of the WMC prepared a report for Mr. McNutt to submit to the President in which they are understood to criticize the need for labor-controlling legislation as being premature and suggest that it is undemocratic inasmuch as they say the democratic means of solving the problem have not been scratched.

The committee further suggested the formation of a central

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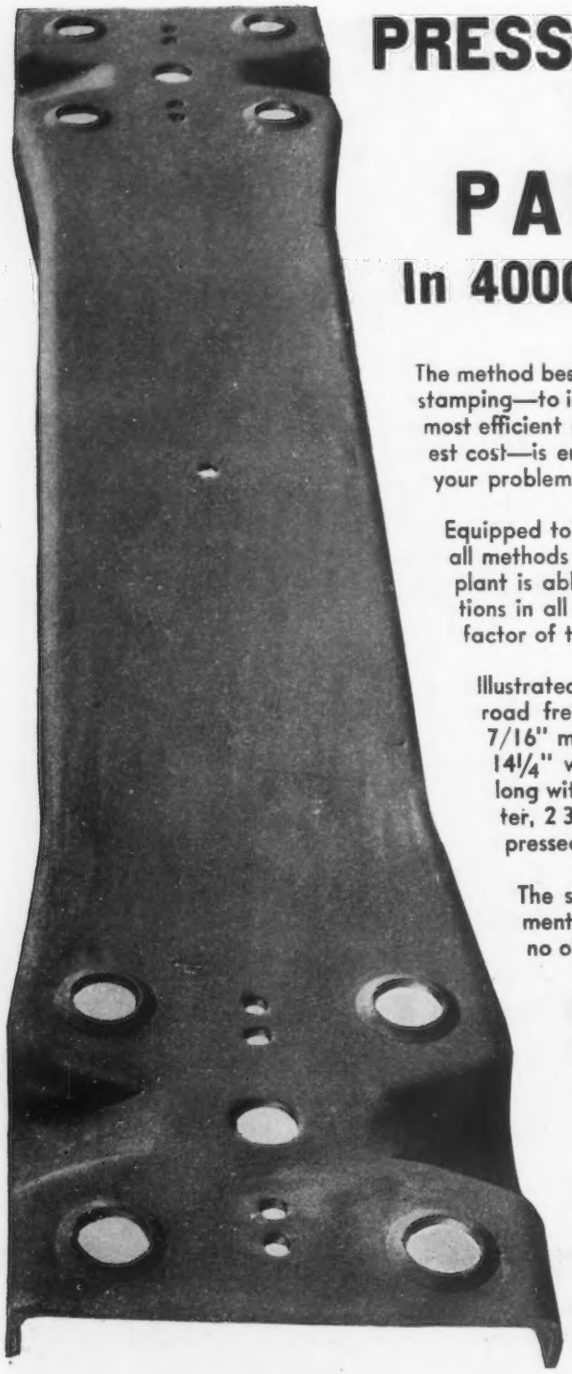
authority to determine who should be deferred in both essential industry and in agriculture and the use of the United States Employment Service as the universal hiring agency for war production labor. (This suggested use of the USES is believed to conform closely with Mr. McNutt's latest thinking on the subject and in effect would serve the same purpose as a labor-control act in that the agency's policies could be adapted to suit the situation without more than Presidential approval.) Criticism of the farm groups can not be spiked so easily as they have not actually seen the directive due to come from Secretary Wickard and consequently have not been too voluble on hearsay. Those who have spoken have criticized it merely as "another step toward socialism" and "a step forward but inadequate." The directive concerning the farm labor stabilization as suggested by McNutt is said to be held up due to "confusion" over the wage policy contained and is likely not to be issued as originally presented to Wickard.

Another issue affecting the manpower situation, the 18-19 year draft bill, has been shelved by the House until after election.

The wage stabilization thunderbolt we've all expected arrived last week in Director Byrnes' stringent new regulations designed to hold maximum individual salaries to $25,000 top and regulate all other salaries down to and under $5,000.

Regulatory power over various types of salaries was divided be-



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Illustrated is a Spring Plank for railroad freight car trucks. Made of 7/16" metal—16⅝" wide at ends, 14¼" wide at center and 93¼" long with flanges 3⅜" high at center, 2 3/16" high at ends—it was pressed cold from heavy steel.

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We have turned our facilities over entirely to the manufacture of various products required by the United States Government and American Railroads.

REWARD FOR ATTENDANCE: To step up production of war goods, the Link-Belt Co. posts weekly attendance charts for each department of its Ewart plant, Indianapolis. These charts are brought up to date every Monday, and at the end of four weeks, the month's average of percentage standings are posted. The department having the highest average attendance is presented with a large cut-out of Uncle Sam, shown above. In the various departments, the averages run from 95 to 99 per cent. The "Productioneers," as Link-Belt calls the men and women workers in their shops, are very interested in the attendance records and a keen sense of rivalry has arisen between the departments.

Ease on Aliens Helps Manpower

• • • Attorney General Francis Biddle last week helped the manpower shortage by lifting the liability from employers who had mistakenly employed aliens on aeronautical or confidential work. The prohibition had resulted in the barring from employment of many thousands of native born citizens who were not able to produce birth certificates.

tween the War Labor Board, the Bureau of Internal Revenue and the Office of Economic Stabilization. In spite of the length and detail of the order, this division of power caused considerable confusion and a number of individual problems need to be clarified before the machinery of wage stabilization will function smoothly.

In general, the powers of the agencies guarding salary limits have been divided as follows:

The WLB controls salaries of $5,000 or under when the employee is a member of a bonafide labor organization or is not employed in an executive, administrative or professional capacity.

Salaries above $5,000 and all those below this figure that do not fall within the scope of the WLB will be controlled by the Bureau of Internal Revenue.

The important limitations of the order provide that (1) all salary increases are forbidden without the consent of one of the two agencies listed above. (Subject to regulations which are yet to be issued by both agencies.) (2) Salaries below $5,000 are frozen at the highest level prevailing between Jan. 1 and Sept. 15 of this year. (3) Salaries above the $5,000 level may not be increased but may be decreased subject to the employers' wishes. (4) Certain exemptions are permitted which eliminate plants employing eight or fewer workers and which permit individual salary increases based on promotion or reclassification within an established rate range or in the normal operation of a salary increase plan based on length of service, increased productivity, incentive plans, etc. (5) A ceiling of $25,000 is imposed on the salary of any individual after allowances have been made for payment of federal income tax (but not state income tax), insurance premiums and other fixed obligations contracted before Oct. 3, 1942. (The average salary that can safely be paid to equal a $25,000 net is said to be about $67,000).

A sort of disconsolate anger has arisen as a result of over-extension of what is believed to have been the President's original thought in the matter of leveling-off high salaries. Most flagrant disregard for the President's original order was pointed to in the ruling which not only limits salaries to $25,000 a year but permits the employers to reduce salaries above $5,000 at their own discrimination. Many points enter into this criticism including the fact that a man whose top salary is frozen, thus squelching personal initiative, can hardly be expected to welcome a cut in salary and

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THIS girl and her fellow workers at Accurate are "stepping on it" in more ways than one—crowding their machines to produce springs and more springs. It's like that all through the Accurate plant—the only restraining influence on speed is our exacting inspection. We will not push production to a point where it is necessary to sacrifice accuracy and quality.

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still be cooperative in the war effort and the fact that even a $5,000 a year man lives up to his salary and with increased living costs this has been none too easy for many under present salary scales.

Worst feature for the 40,000 who will be affected by the $25,000 ceiling is the fact that only federal income taxes (not state income taxes) are deductible, hence the $25,000 is not actually a net salary as originally proposed by the President.

Almost impossible feature for the employer is the demand that the $25,000 figure be the total of any employee's entire income from all sources. This loads upon the employer the task of determining the employee's income from all sources and paying an amount which collectively will not exceed the limit.

Penalties of up to $1,000 fine and one-year imprisonment will be meted out to transgressors—these being the employer in all cases and not the salary earner.

•

• • • **Last word at press** time indicated that the demands of McNutt and others for a National Service Act were being shelved by President Roosevelt for the time being to allow the unions time to survey the needs for such legislation, the time for its introduction and more exact details on the limitations to be included. This was at the union's request. President Roosevelt has acquiesced, it is understood.

The decision was the result of a visit to the White House of the Combined Labor Victory Committee. Both William Green, president of AFL and Phillip Murray, president of CIO stated that they had gone on record with President Roosevelt against compulsory labor control at this time.

Paul V. McNutt, chairman of the War Manpower Committee, stated that there was no intention on his part of forcing speedy enactment of legislation as directives such as have been issued in the cases of the copper miners, lumbermen and agricultural workers will do the job without further legislation. Action such as was taken in these cases was with the joint agreement of labor, management and the government, McNutt said, and as the occasion arises similar action will accomplish the purpose.

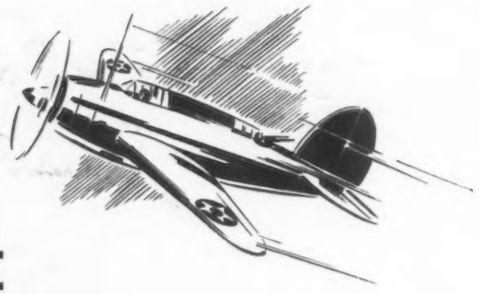
•

WLB Grants Pay Raise To L. A. Steel Casting

Washington

• • • **The WLB this week** granted an increase averaging 10c. an hour to 500 employees of the Los Angeles Steel Casting Co. in one of the first moves since wage stabilization became a reality. No mention was made that this decision was made under the scope of the newest stabilizing directives but since WLB will make those decisions too it is believed that this was the case.

In making the decision, the board followed the recommendation of the arbitrator which justified the increase to equalize the pay of this shop with other shops in the area. As such this seems to agree with the limitations of



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Prime and sub contractors faced with the tremendous aircraft production goal will find help in ACP's years of experience.

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ACP has been working steadily on the treatment of metals for the Aviation Industry—and all industries . . . the knowledge of ACP technicians and chemists is available to you.

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Other ACP Products that contribute to the war effort are: RODINE, the pickling inhibitor that saves steel and acid; CUPRODINE for producing tight, bright copper coatings on steel by simple immersion; LITHOFORM for coating galvanized iron to hold paint.

These are typical ACP Products. The experience of the ACP laboratories in metal treating and finishing processes is at your service.

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the Wage Stabilization bill. In addition, piece-work was established on certain jobs at the company's discretion and maintenance of membership and the check-off were granted.

•

War Council Staggers Buffalo Working Hours

• • • **The New York State** War Council approved this week a plan of the Buffalo War Council for staggering the working hours of Buffalo's congestion of war workers. This is understood to have been a controversial question between the Buffalo War Council, the state War Council and the Buffalo transportation men, centering mainly around an advisable starting hour for workers.

It is understood that the transportation men were in favor of a starting hour of as early as six o'clock in the morning. Both the local and state War Councils have been opposed to this as it is considered a contributary cause for excessive absenteeism.

The staggering system adopted for working hours, although not revealed in detail, included a proviso that no starting hour would be earlier than 7.30 a.m. which indicates a meeting of the minds on this problem possibly brought about through Mrs. Ann Rosenberg's (War Manpower Commission) visit.

•

WLB Public Member Holds for Contract

Washington

• • • **"A contract which** may be breached at will rests upon a foundation of shifting sands."

These were the words of Wayne L. Morse, public member of the War Labor Board in an opinion announced last week in the dispute between the Tennessee Coal, Iron & Railroad Co. and CIO's International Union of Mine, Mill and Smelter Workers, involving the extension of the "Little Steel" formula.

The Board, suddenly solicitous about the sanctity of contractual rights which it originally ignored in the United States Steel Corp. case, denied 5000 CIO workers retroactive pay beyond March 27. The workers were employed in TCI ore and limestone mines and dolomite quarries.

The fact finding panel appointed by the Board recommended a 5½c. an hour retroactive pay increase to Feb. 15, the same date as the retroactive date in the Board's decision in the case of the steel producing subsidiaries of the United States Steel Corp.

Dean Morse, formerly with the University of Oregon Law School, thought this was wrong and said:

"There is nothing in the language of that contract which would justify a finding that the parties intended or understood that whatever retroactive pay adjustments might be made in the basic steel industry would also be made in the instant case. The contract must speak for itself, and it provides that the wages set forth in the contract shall remain fixed until 20 days after mailing of notice or the union's desire to

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negotiate changes in the contract, which in this instance would be March 27."

•

110 Offices Will Soon Facilitate Wage Control

• • • **William H. Davis,** chairman of the WLB, who last week disclosed in an interview in New York that field offices would soon be established for the handling of wage control questions, this week announced that 100 offices of the Wage and Hour Division will be used for this purpose by the WLB and that 10 regional offices of the WLB will be established.

The ten regional offices, which will be set up in about ten days, will be located in Boston, New York, Philadelphia, Atlanta, Kansas City, Cleveland, Chicago, Dallas, Denver and San Francisco.

The primary function of the Wage and Hour offices will be to answer specific questions by employers and employees in their localities pertaining to wage and salary adjustments.

The regional director located in each of the contemplated WLB regional offices will be the recipient of all requests on wage questions from the Wage and Hour offices. If the employer openly comes under the exempted classification or the employee's request does not fall near the borderline of decision it is understood that the regional director will pass on the application. If on the other hand the application is not an open and shut case, it will be referred to the War Labor Board for a decision. Even when a case is referred to WLB by the regional director he approves or disapproves the application before transmitting to the WLB.

The regional director's decision may be appealed to a panel comprised of spokesmen for labor, industry and the public. The panel's decision will be final if unanimous but if not, the minority member will decide whether the case needs to be appealed to the WLB itself. The employer, when making application for a wage increase, must state whether he intends to ask for a heightened ceiling price as a result of the wage increase. If this is contemplated, the matter is referred to the OPA who in turn make a recommendation to the Office of Economic Stabilization.

•

UAW to Ask Labor Board to Reconsider Wage Settlement

Detroit

• • • **The United Automobile** Workers (CIO) is preparing a petition to the War Labor Board to reopen the wage cases of automobile plant maintenance workers, an unprecedented move. The Labor Board refused a general wage raise sought for 31,000 workers but ordered a 6 cent an hour raise for about a third of them, employed by Ford, General Motors and Chrysler. The UAW characterized this settlement as "completely unsatisfactory."

At the time this settlement was announced, two officials of the Maintenance Workers Council of the UAW resigned and joined the independent Mechanics Educational Society of America. The MESA thereupon issued a charter to maintenance workers in the Briggs-Conner plant, and announced that a bargaining election would be asked.

for

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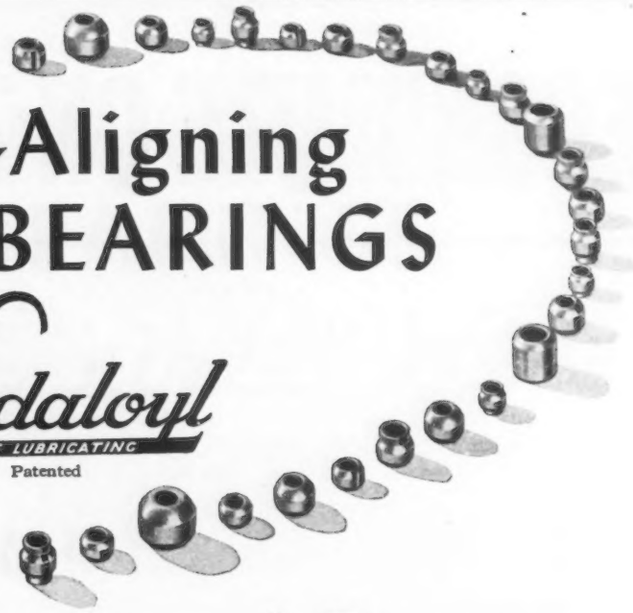

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When you design a new motive unit, give serious consideration to the use of self-aligning bearings. Properly designed and installed, they deliver excellent service plus the large saving they make in assembly operations.

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Railroad Car Repair Parts Under Price Regulation No. 136

• • • **Sales by** car builders to railroads of partially or wholly fabricated car parts, usually produced and sold in such form for use in repairing and maintaining railroad freight and passenger cars, are not subject to the pricing provisions of Maximum Price Regulation No. 174 (Freight Car Materials Sold by Car Builders), the OPA has ruled.

Maximum prices for such parts are to be determined under Maximum Price Regulation No. 136 (Machines and Parts and Machinery Services), OPA added.

To clear up any misunderstanding that might exist in the trade, however, Amendment No. 1 to Maximum Price Regulation No. 174 has been issued, clearly excluding such parts from that regulation's coverage. The amendment became effective Nov. 2.

On April 29, 1942, the War Production Board, (through Supplemental General Limitation Order No. L-97-a-1) cancelled certain preferential ratings on material for railroad car construction, thereby requiring all freight car builders to make full use of their inventories of materials before they were permitted to buy more raw materials.

A new extra card has been issued covering NE steels. It is printed in full on page 149.

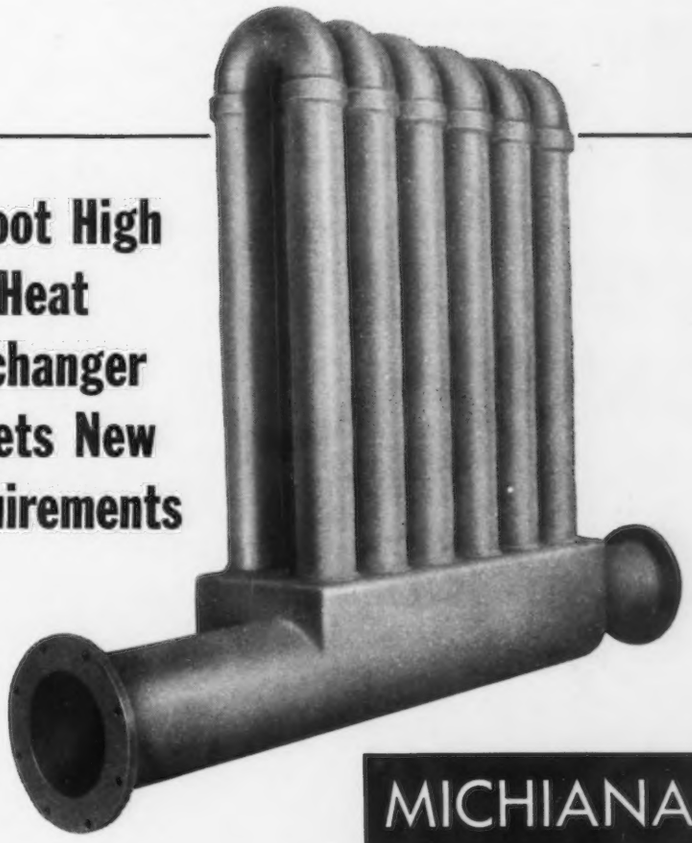
In April, WPB also reduced freight car construction substantially and car builders were authorized to transfer to other builders or railroads any materials, parts or supplies they had on hand in excess of what they actually needed for the number of cars they were permitted to build. To speed the interchange of such surplus parts, a uniform pricing procedure was established for car builders by the issuance of Maximum Price Regulation No. 174.

In accordance with the industry's desire that these transfers be carried out in a spirit of cooperation with the war program, the maximum prices established by Regulation 174 permit no profit to the selling car builder. This limitation, however, was not intended to apply to the sale by a car builder to a railroad of partially or wholly fabricated car parts, usually produced and sold in such form by the car builder, for repair of freight cars. Such sales represent the car builders' regular business and this amendment makes clear that the maximum prices therefore are to be found, not in Regulation 174, but in Regulation 136.

Export Price Action

• • • **Formally** writing into the Revised Maximum Export Price Regulation an interpretation which has been applied almost from the outset, the Office of Price Administration, Oct. 29, issued an amendment prohibiting an exporter from billing goods at a

7-Foot High Heat Exchanger Meets New Requirements



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For new developments or routine jobs, you can depend on MICHIANA recommendations and be sure of long heat-hour performance.

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MICHIGAN CITY, INDIANA

price in excess of the maximum export price which he might charge his customer on the particular export sale.

•

Treasury Silver Price Set

• • • **A maximum** price of 45c. per troy ounce for sales by the United States Treasury of its supplies of "silver ordinary" was established by the Office of Price Administration.

"Silver ordinary" is metal accumulated by the Treasury from the following principal sources: (1) silver yielded as a by-product from gold ore deposited with the Treasury for refining, (2) scraps of metal left from coinage, and (3) metal received from underestimating silver content of mutilated coins.

The price for "silver ordinary," which is sold .999 fine, is in line with the 45-cent maximum governing silver market transactions in other than newly-mined domestic silver. The maximum price for newly-mined domestic silver is 71.111 cents per ounce.

•

Report Rule Relaxed

• • • **Reports filed** with the OPA will no longer have to be executed under oath.

"Since the Emergency Price Control act makes submission of false statements to the OPA a criminal offense regardless of whether the statement is made under oath or affirmation, notarization is unnecessary," OPA officials said.

Canada's War Output Reported on Schedule

Toronto

• • • **C. D. Howe,** minister of munitions and supply, stated that Canada's production of war materials is well up to schedule and output this year will almost double that of last year, and next year might see a similar increase.

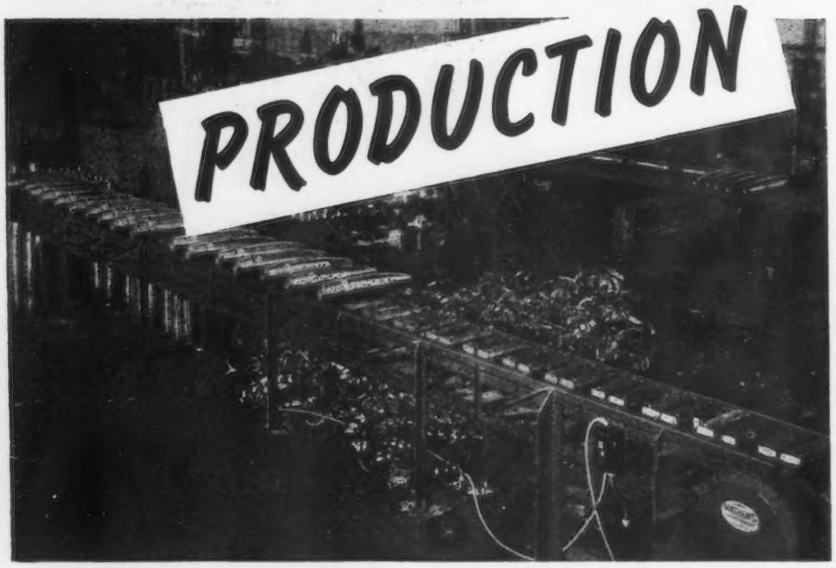
NORMANDIE RIGHTING PROGRESSES: Workmen, struggling to get the onetime luxury liner Normandie — now U.S.S. Lafayette —in condition for righting after lying for months on her side in the mud of the Hudson River at Pier 88. The vessel, destroyed by fire and capsized by tons of water poured into her by fire fighters, has been stripped of super-structure and all loose gear and wood and will soon be ready for raising by a method known as controlled pumping.

International News Photo

DOUBLED CAPACITY FOR WAR PRODUCTION

Stepping up our productive capacity month after month has barely enabled us to keep pace with mounting war orders. As long as this condition exists, it becomes increasingly difficult to meet civilian requirements. Our one big job is the handling of war material. That job must come first.

YOU HAVE ONLY ONE PROBLEM . .



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● PEAK WAR PRODUCTION SCHEDULES are attained and maintained a lot easier with a well engineered Conveyer System.

Keeping supplies, parts and materials moving freely to and from high-speed processing equipment is an important key to increased man-and-machine-hour production. This continuous flow eliminates bottlenecks . . . reduces worker fatigue . . . and enables you to achieve maximum production.

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Field Engineers and Sales Offices located in 30 Industrial Centers.

Controlled Materials Plan Is Revealed; Effective in 2d Quarter

Washington

• • • **Donald M. Nelson,** WPB chairman, announced on Tuesday that a new system for material distribution would be inaugurated for the control of steel, copper and aluminum. The plan is called the Controlled Materials Plan and will be effective for the second quarter of 1943. Although now the plan calls only for control over steel, copper and aluminum, other materials may be brought under it later by WPB.

CMP will lodge in the armed services and other claimant agencies joint control over approximately 75 per cent of the steel to be produced after it goes into effect. This will be done because 75 per cent of the steel production will be taken by the claimant agencies.

The following is a chronological outline of the CMP plan:

1. November and December, 1942.

Claimant agencies complete the collection of bills of material and estimate requirements, pursuant to instructions from Requirements Committee.

2. January 1, 1943.

Claimants submit requirements to Controlled Material Branches, with a copy to Requirements Committee, showing controlled materials required, by months, broken down as between (a) production, (b) construction and facilities, and (c) maintenance, repair and operation supplies.

3. January 1 to January 15, 1943.

Controlled Materials Branches and Office of Vice-Chairman analyze requirements submitted by claimant agencies and make preliminary reconciliation to the extent possible between requirements and supply.

4. December, 1942, and January, 1943.

Claimant agencies and prime contractors proceed to develop information necessary in making final allotments, in order to be in readiness for distribution of allotments when made by Requirements Committee.

5. February 1, 1943.

Requirements Committee makes allotment of controlled materials to claimant agencies for second quarter of 1943.

6. February, 1943.

Claimant agencies distribute allotments to prime consumers.

7. February and early March, 1943.

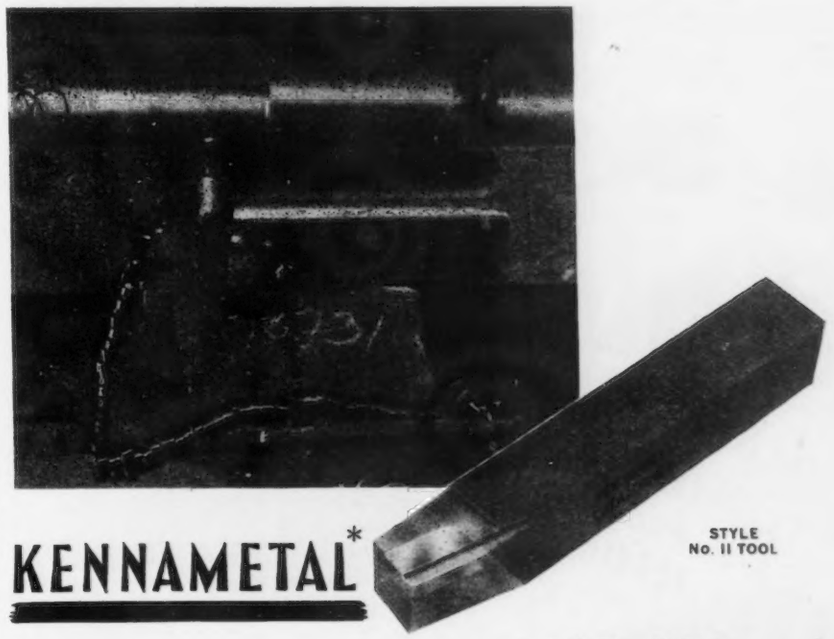
Prime contractors divide up allotments authorized by claimant agencies between secondary consumers and consumers place authorized orders with suppliers.

8. March, 1943, and thereafter.

Controlled Materials Branches watch placement of orders on mills and mills' shipments and render assistance in placing orders for consumers of controlled materials who are unable to obtain mill acceptance of authorized orders.

9. Alternative plans and procedures with reference to controlled materials are abolished and thereafter controlled materials are obtainable only under the plan.

Bills of material for specific end products will be submitted by prime contractors to the Army, Navy, Lend-Lease, Maritime Commission and the Board of Economic Warfare. From these bills the armed



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A TOOL BUILT FOR HIGH OUTPUT

KENNAMETAL is designed for greatest possible production on steel machining jobs which include boring, turning, and facing operations.

The turning operation illustrated shows two things: note on the right the extremely rough outer surface of this SAE 4120 forging. KENNAMETAL made this rough cut and subsequent turning at a speed of 150 ft./min. despite the job's being 302 Brinell; feed was 1/16, depth was 1/4 to 3/4".

Note also the finish of the job being turned by KENNAMETAL as compared with the uneven surface of the bar in the rear turned by high speed steel at only 35 ft./min.

No other carbide can match the output performance of KENNAMETAL on boring, turning, and facing steel operations.

Get KENNAMETAL to step up your plant production.

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services and the other claimant agencies will submit material requirements for the controlled materials to the WPB Requirements Committee. The Requirements Committee will certify to the claimant agencies allotments of material for direct military purposes.

Prime contractors will make application to the claimant agencies for direct military allotments of controlled materials and to WPB for all others. Prime contractors will authorize the requests for materials for subcontractors limited as to quantity and as to period of consumption exactly as they received their authorization.

Because of the controversy over whose plan was finally adopted, top men of the WPB and the WPB Iron and Steel Branch were asked whether the plan could be directly attributed to any one group. Steelman denied that the plan adopted was in essence the Steel Budget Plan but said that the elements of the plan having to do with time and quantity control were directly attributable to the Steel Budget Plan. Ranking WPB officials said that the system included features of both the General Motors Plan and the Steel Budget Plan as well as entirely new features. It cannot be said that it is exclusively WPB's plan. It was worked on by all of the armed services and claimant agencies.

No preference ratings will apply to controlled materials after June 30, but during the second quarter of 1943 both allotment numbers under the plan and preference ratings under PRP will be in effect. Preference ratings will continue to apply to fabricated products and not steel products as defined in the plan. Fabricated products are any products not included in the list of steel products.

During the second quarter, at the mill level, allotment numbers will govern schedules to the extent granted to the mill, and any steel above that taken up by allotment numbers will be controlled by preference ratings.

As indicated, materials other than controlled materials will continue to be distributed through the Priorities System. Each company receiving an allotment number carrying an allocation of steel will also receive a preference rating for use in obtaining other materials. A preference rating accompanied by an allotment number will be higher than other ratings of the same category but will not take precedence over higher ratings. For example, AA-3 plus an allotment number is higher than AA-3 without the number, but not as high as AA-2X.

Production directives which have been in operation in the Steel Branch for several months, will be employed by the Copper and Aluminum Branches in the future. In this respect the authority of the branches is supreme. If a mill receives orders beyond capacity, it must refuse them and notify the appropriate branch. If a consumer with an allotment number cannot place his order satisfactorily, he should appeal to the branch. To prevent duplication, each company operating under PRP will be required to cancel authorizations made under

AMPCO CASE HISTORIES

The designing engineers of a power shovel increased the service life of bronze bushings used with track rollers 50% or more when they standardized on bronze bushings made from Ampco alloys. Formerly, these bushings were made of ordinary bronze, but after considerable experience under all types of field service, Ampco-made bronzes were found more desirable.

Since the parts in power shovels are subject to grit, dust, and abrasive particles in normal operation, each part must stand up under these severe conditions. The wear-resistant characteristics of Ampco alloys, combined with great strength and hardness, make them especially desirable in this service. Full information sent on request.

AMPCO METAL, INC.

DEPARTMENT 1A-11 MILWAUKEE, WISCONSIN

AMPCO METAL

AMPCO

THE METAL WITHOUT AN EQUAL

PRP in equal amounts for CMP allotments, and the total authorizations outstanding at any time will not be permitted to exceed available supply.

WPB has set up two classes of products. Class A products are end or fabricated products purchased by the military or other claimant agencies. Class B products are all others. Class A products will be applied for by prime contractors addressing the claimant agencies. WPB will handle essential non-military items.

The Office of Civilian Supply will be the advocate of all essential non-military items before the Requirements Committee. Quotas, assigned by the Requirements Committee, will not be handed out by the Office of Civilian Supply, but will be earmarked by the Requirements Committee and issued by the appropriate WPB industry branches.

The over-allotment is intended to stimulate increased production from producers. The claimant agencies which may make allotments for future quarters, are authorized to make these allotments on the basis of declining percentages of allotments established for the current quarter. These percentages are: For the quarter immediately following the one for which a definite allotment has been made, 80 per cent; for the next following quarter, 60 per cent; and for all later quarters, 40 per cent.

Mills will be authorized to accept orders up to 105 per cent of expected production and the schedules authorized by the claimant agencies to prime consumers may be for as long as one year. Mill operations will be governed by the date of receipt of approved allotment numbers. Subcontractors and sub-suppliers will receive shortened forms of authorization bearing the same allotment number as that of a prime contractor. Allotment numbers will indicate the initial of the agency, the program number, the number of the prime contractor's schedule and the month of delivery. An example of a War Department order would be "W-1234-567-16." April, 1943, is expressed by (16) because it is the 16th month after Jan. 1, 1942.

WPB has set up three new units to facilitate the operation of the system. The central engineering unit, to be composed of technical men, which has not as yet been set up, will maintain a constant audit and examination of bills of material. The recording unit will keep records of the allotments placed with the claimant agencies and inform WPB when allotments are in danger of exceeding supply. The service unit will answer questions and advise on the operation of the plan.

The exceeding of allotments by a prime contractor is made a criminal offense punishable by a fine of $10,000 or one year in prison or both for each violation and manufacturers must submit inventory reports to the WPB Materials Redistribution Branch within 15 days after a quarter provided his inventory is in excess of a specified amount, on forms specially provided for this purpose.

The WPB Iron and Steel Branch will have the duty of policing all industry in the use of iron and steel

We can deliver
within a few days
STANDARD Plug GAUGES!

IN INSTANCES where there are vitally important rush orders, the Turner Gauge Grinding Company can deliver standard plug gauges within a few days after your order is received. We carry in our stock at all times standard plug gauge blanks, turned up and hardened, ready for finishing and final inspection.

If this promise sounds unbelievable in these times, try us today with a small order. Wire, now, if you really need standard plug gauges in a hurry!

ONE of the reasons why we can *make* and *keep* delivery promises is our new home designed solely for the manufacturing of precision gauges. It is modern in every detail, contains over 10,000 feet of floor space and is equipped with machines and inspection instruments of the latest design. Under such conditions, our skilled operators can produce finer work and still maintain wartime production schedules.

WIRE OR SEND THIS COUPON TODAY!

Turner Gauge Grinding Co.
Ferndale, Mich.
Gentlemen:
Please rush price lists today.
Name.....
Street.....
City.....State.....
☐ If enclosing order please check here

TURNER GAUGE GRINDING COMPANY
2629 HILTON ROAD • • • • FERNDALE, MICH.

products controlled by the plan. Copies of all steel allotment numbers, indicating time of consumption and the quantity which may be procured under such an authorization will be routed to the branch.

The purpose of the plan is to once and for all bring a meeting between supply and demand. Supply figures will be furnished by raw material producers and demand figures will be established by the claimant agencies through conference, estimate and actual bills of material of prime contractors. The enforcement of the allotments will be the principal job of WPB.

WPB says this method of distributing materials constitutes vertical allotment. So far as controlled materials are concerned, it will gradually replace the present Priorities System, including the PRP, which is on a horizontal basis.

Steel application forms, the agency authorization forms and the inventory report forms have been drawn but may be subject to change.

Adjust Orders Promptly, Is Plea of PRP Officials

• • • **Appealing** to the patriotism of industrialists before threatening them, WPB priorities officials at New York last Thursday requested firms under PRP to adjust quickly and accurately their outstanding purchase orders to conform to the quantities and ratings authorized on their fourth quarter certificates.

Excess deliveries obviously will upset the carefully prepared balance of raw materials, it was said. Adjustment of orders must conform with Priority Regulation 11, as amended Oct. 3, providing for the review of all purchase orders for material whether rated, unrated or allocated, and cancellation of orders in excess of the amounts specifically rated and authorized on a PRP certificate.

Excess shipments cannot be concealed, the regional officials said. They predicted that the granting of PD-25-f applications in fourth quarter would be slim.

Other points stressed were:

Adjustment of outstanding purchase orders must be made within five days after receipt. Adjustment downward, when required by the new ratings, is mandatory.

The "carry over" provision has been changed. Any "listed mate-

Your Choice of a Scrap Broker is Important

The sale of Iron and Steel Scrap should be — and can be — as satisfactory and pleasant as any business transaction in your plant.

Be sure to choose a broker who can rightfully claim these qualifications—

1. A reputation for trustworthiness and responsibility.
2. A record of prompt payment and readiness to adjust differences without quibbling.
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We guarantee our customers these and other high standards of business relationships.

In our career of nearly 50 years as an iron and steel scrap broker we have built on these principles.

We solicit further opportunities to be of service in the movement of iron and steel scrap from industrial plants, railroads and scrap yards to steel mills and foundries.

The
CHARLES DREIFUS
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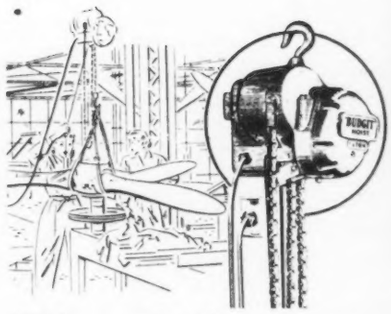
(Scrap Broker for Nearly Half a Century)

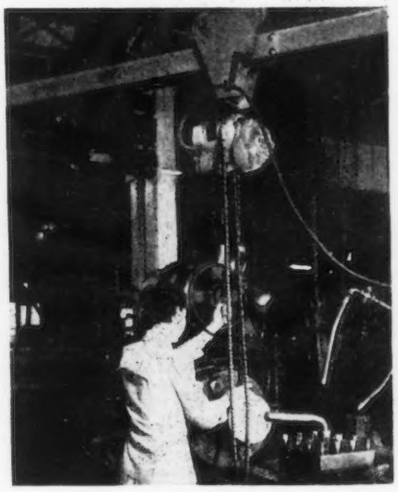
Philadelphia, Pa. Widener Bldg. Rittenhouse 7750
Pittsburgh, Pa. Oliver Bldg. Atlantic 1856
WORCESTER, MASS. Park Bldg. Worcester 6-2535



The girl's place

HER brother has gone to war. She has donned working overalls and taken his place in the army of producers. With her own feminine muscles she could not have lifted the heavy parts. So the tireless 'Budgit' Hoist was drafted to lift for her. She keeps up with the best of the men and never becomes fatigued.

'Budgit' Hoists are portable, electric hoists with lifting capacities of 250, 500, 1000 and 2000 lbs. They are priced from $119 up. Hang up, plug in, and use. For complete information, write for Bulletin 348.



Send for catalog containing complete information on Hoists, also "Time-Saving Calculator" that shows savings they earn.

MANNING, MAXWELL & MOORE, INC.
MUSKEGON MICHIGAN
'BUDGIT' HOISTS

Builders of 'Shaw-Box' Cranes, 'Budgit' and 'Load Lifter' Hoists and other lifting specialties. Makers of Ashcroft Gauges, Hancock Valves, Consolidated Safety and Relief Valves and 'American' industrial instruments.

rials" (those given an item number and printed on the form) which were ordered on a previous authorization but received during fourth quarter, must be deducted from the quantities authorized on the fourth quarter certificate. Exceptions are materials actually in transit on Oct. 1, 2 or 3.

Section F material orders must also be cancelled or downward rated if the fourth quarter orders are outstanding in excess of the quantities authorized on the certificate. Such orders might have been previously placed from bob-tail reports or from the 70 per cent interim authority.

If a PRP unit elects the option permitted to extend ratings for production materials other than listed materials, such extension is governed by all the provisions of Priority Regulation No. 3. This option does not cover printed Section E items, except chemicals.

Summing up their remarks, the officials cited the example of a firm allowed 1000 tons of steel in third quarter with actual incoming shipments totaling only 500 tons. Allowed 750 tons for fourth quarter, this firm could only receive 250 tons of the fourth quarter amount because of the carryover due the firm from third quarter, he said.

•

Use of Copper Curtailed

• • • **Installation of** copper in buildings has been reduced to practically zero with the issuance of an amendment to Supplementary Conservation Order M-9-c-4. The amendment continues to restrict the use of copper building products for repairs to 25 lb. or less and permits these small amounts to be used only when they were in the possession of the user Oct. 27.

•

Hand Tools Defined

Washington

• • • **WPB last week** issued Amendment 3 to General Preference Order E-6 giving a more strict definition than heretofore given to hand service tools, sales and deliveries of which are limited to purchase orders rated A-9 or higher. The amendment describes the tools as metal working chisels, metal cutting files, machinists' ball pein hammers, metal cutting snips and shears, pliers of all types, metal working punches, screw drivers of all types and all types of wrenches.

HEAT-TREATED STEEL SHOT

We manufacture shot and grit for endurance

A shot or grit that will blast fast with a clean finish.

This is the only reason why so many operators are daily changing to our shot and grit, from Maine to California.

The unprecedented demand for our—

Heat-Treated Steel Shot and Heat-Treated Steel Grit

has enabled us to expand our production and maintain a quality that is more than satisfactory to our hundreds of customers all over the country.

•

HARRISON ABRASIVE CORPORATION

Manchester, New Hampshire

HEAT-TREATED STEEL GRIT

SEVEN MEN INSTEAD OF TEN

The Ransome Welding Positioner illustrated effectively positions heavy awkward pieces such as that shown. The time saved in this particular installation permits seven men to do the same amount of work ordinarily requiring ten men without the use of the Positioner. "Impossible" positions are conveniently and securely established for efficient speedy welding operations. Write for literature.

The unit shown is one of many installed at the plant of the York Safe and Lock Company, York, Pennsylvania.

INDUSTRIAL DIVISION

RANSOME MACHINERY COMPANY

Dunellen, New Jersey

It's a good spring that wears out from old age. Many springs may grow old before their time because of unnoticed surface defects. Burrs, seams, pitting, cracks — all contribute to early spring failure — unless care in manufacture and laboratory inspection weeds them out. Surface defects often invite corrosion — also a contributing factor to a short life. Here at Dunbar's, spring materials are inspected, analyzed — before manufacture. All the way through, great pains are taken to waylay defects before they reach your assembly line. It's just this kind of care that earns for Dunbar a reputation for springs of better quality — long life.

"Quality Springs Since 1845"

Dunbar Bros. Co., Bristol, Connecticut

DIVISION OF ASSOCIATED SPRING CORPORATION

CONTINENTAL STEEL

CONTINENTAL STEEL CORPORATION ★ SUPERIOR STEEL SHEETS

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These are trademarks well-known among manufacturers for the quality they represent. Continental produces steel sheets and wire in a vast variety of specifications to meet the requirements of manufacturers.

CONTINENTAL STEEL CORP.
Kokomo, Indiana
(The Superior Sheet Steel Co., Canton, Ohio — a subsidiary.)

CONTINENTAL SUPERIOR STEEL

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SHEETS: Black, Galvanized, Copperior, Hot and Cold Rolled, Special Coated, Long Terne, etc.

WIRE: Bright Basic, KONIK, Coppered, Tinned, Specials, etc., also CHAIN LINK FENCE

The amendment also corrected a mechanical error made in Amendment 2 issued Oct. 10. That amendment incorrectly referred in one line to "Exhibit A." It should have referred to "Exhibit B."

•

Export Data Asked

Washington

• • • **Future applications** for licenses to export machinery, equipment, parts and materials for processing rubber will have to include a comprehensive statement as to the exact nature of the business of the ultimate user, according to a new export control order issued by BEW. The statement also must include the type of rubber articles to be manufactured with the equipment, machinery, parts or materials ordered, and the reasons why such articles are considered to be essential and the status of consignee's stocks.

•

Amendment Aids Packers

• • • **Packers** of fruit and vegetables are assigned higher preference ratings for material and machinery for replacement, maintenance and repair by an amendment to Preference Rating Order P-115, issued Oct. 27. In addition, fish packers are included under P-115 for the first time. Previously, they were operating only under Order P-100.

•

New Controls Seen Becoming Effective in Second Quarter

• • • **Present** priorities controls will remain in effect through fourth quarter and with some modifications during first quarter of 1943, said Henry P. Nelson, chief of the WPB system planning section, speaking in New York before the National Electrical Manufacturers Association last week. The new system for control and allocation of materials will be put into effect for second quarter of 1943, he added.

(Meanwhile, John Ballantine of the New York priorities office and formerly of WPB at Washington, flatly stated that the Materials Control Program would be merely a change in name from PRP and that basic elements of PRP would be retained.)

According to Nelson, the Production Code, widely heralded by WPB but never actually put into effect to replace the end-use system, is not

likely to be issued. Still another system is on the planning boards, he said. Endless confusion has centered around the symbol system, widely criticized as not practical.

The availability of material was called the determining factor in the war production program by Nelson. "Industry has now been converted to war production to a point that productive capacity has passed the available material supply," he declared. He called on manufacturers to make the most effective use they possibly can of existing inventories.

•

"Precedence List" Issued

• • • **Further control** over the production of electronic equipment is established by Limitation Order L-183-a, announced Oct. 27. Producers are ordered, after Jan. 1, 1943, to schedule, within any single priority rating, production and deliveries of electronic, communication, detection, and signalling equipment according to numerical designations assigned by the restricted "Precedence List" of the Joint Communications Board of the Army and Navy.

•

WPB Sets Standards For Housing Construction

Washington

• • • **Growing shortages** of critical materials, manpower problems and the necessity for insuring maximum utilization of available stocks were given by WPB as the reasons for its directive of last Thursday setting up nationwide standards of design and material consumption for all future housing construction.

"Effective as of the date of these standards" the directive states, "the War Production Board will not issue preference rating orders for new prefabricated or site constructed housing unless their construction complies with the provisions of the following paragraphs, and a minimum of critical materials and lumber is used, and will not extend the term of preference rating orders previously issued for housing projects except where (a) the preference rating order has been applied to the purchase of materials, or (b) prefabrication or construction of the project has started, or (c) the construction of the project complies with the standards."

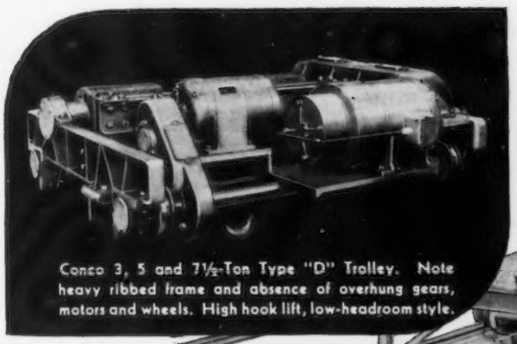
•

Inventory Data Secured

• • • **Findings** on which it based its decision that regulation of inventories of consumers' goods is essential in the war program have been submitted to Joseph L. Weiner, deputy director of the Office of Civilian Supply, by the special wholesale and retail inventory policy committee.

The decision to proceed directly to a formal inventory control program, instead of adopting a method of requiring quarterly reports from wholesalers, retailers and manufacturers, was announced Oct. 20.

An analysis of the report

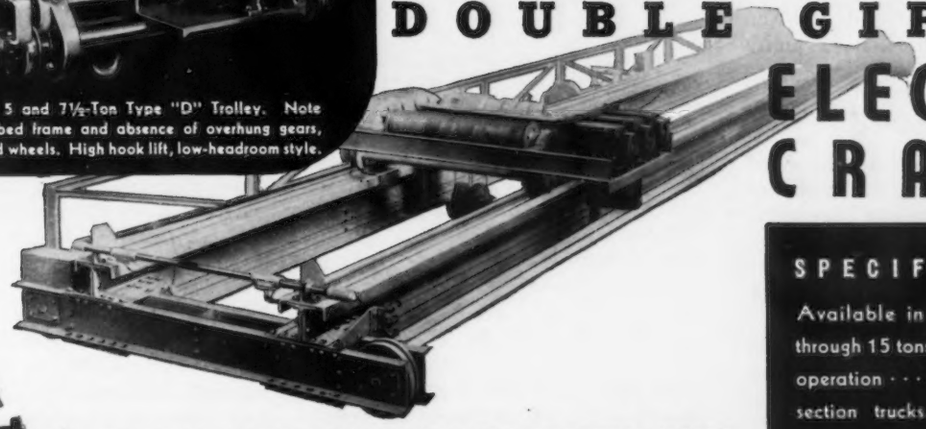


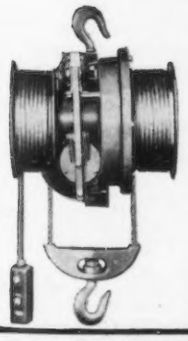
Conco 3, 5 and 7½-Ton Type "D" Trolley. Note heavy ribbed frame and absence of overhung gears, motors and wheels. High hook lift, low-headroom style.

THE U. S. WAR DEPARTMENT USES

CONCO

DOUBLE GIRDER ELECTRIC CRANES





BY BUILDERS OF CONCO TORPEDO ELECTRIC HOIST

The CONCO TORPEDO ELECTRIC HOIST is available in capacities of 250-lb. — $139.50, 500-lb. — $149.50, 1000-lb. — $159.50. Cut-away view shows outstanding features that include: Push button control; Solenoid electric brake; Double drum construction — for perfect balance; Hook, bolt or trolley suspension; Positive limit switch. Heavily constructed, employing only two gear reductions — one worm gear and one spur gear. One of Conco's complete line of hand-powered and electric cranes, hoists and trolleys. Write for literature.

SPECIFICATIONS

Available in capacities from 3 through 15 tons · · · — Floor or cab operation · · · — Heavy duty box section trucks · · · — Hyatt roller bearings throughout · · · — Magnetic paddle type hoist limit switch · · · — Oil cooled mechanical hoist brake · · · — Standard motors · · · — Push button or manual control · · · — Hoist gears and holding brake operate in bath of oil · · · — Factor of safety of 5 to 8. Write or wire for complete details.

CONCO ENGINEERING WORKS • MENDOTA, ILLINOIS

Division of H. D. CONKEY & CO., 15 GROVE STREET, MENDOTA, ILLINOIS

This Week's Priorities and Prices

Manganese ore prices have been established in Maximum Price Regulation No. 248, effective Nov. 9. (OPA-T-220)

Primary and secondary cadmium price adjustments are permitted by Amendment No. 2 to Revised Price Schedule No. 71, effective Oct. 26. (OPA-T-233)

Use of copper in construction has been further restricted by conservation Order M-9-c-4 issued Oct. 27. (WPB-2073)

Freight car materials for repairing and maintaining cars are subject to Maximum Price Regulation No. 136, under Amendment No. 1 to Maximum Price Regulation No. 174, effective Nov. 2. (OPA-T-228)

■ ■ ■

For copies of above announcements address Office of War Information Washington, giving announcement number as shown in parentheses after each paragraph. (For example, WPB-600 *means announcement* 600 *issued by the War Production Board.)*

Revisions to The Iron Age Priorities Guide

• • • The following data, together with all intermediate weekly revisions in THE IRON AGE, should be added to THE IRON AGE Priorities Guide published with the issue of October 8 to bring the Guide up to date.

"M" Orders:

M-2-b...Amendment (10-30-42) extends order until Dec. 31.

M-9-a...Amendment No. 1 (10-30-42) restricts sale of brass mill and wire mill products by warehouses to holders of preference ratings of AA-5 or higher.

M-9-c-4...Amended order further restricts incorporation of copper in construction (10-27-42).

M-21-b...Amendment No. 7 (10-30-42) restricts sales of iron and steel by warehouses to orders rated at AA-5 or over.

M-49...Amendment No. 1 (10-26-42) extends order until revoked.

M-72-a...Amendment (10-24-42) adds Wisconsin to Schedule B.

M-115...Amended order (10-27-42) assigns higher preference rating to fruit and vegetable packers for machinery for replacement, maintenance and repair.

M-154...Amendment No. 4 (10-31-42) extends to Jan. 1 effective date of scheduling production and delivery under order.

"E" Orders:

E-6...Amendment No. 3 (10-29-42) to amended order places metal working tools under order subject to an A-9 rating.

"L" Orders:

L-23-c...Amendment No. 3 (10-27-42) adds thermostats to list of accessories to domestic cooking appliances.

L-59-a...Supplementary Limitation Order (10-31-42) defines new production allowances which may not be in excess of one-eighth of the tonnages permitted by L-59 (as amended) for the preceding four months.

L-183-a...Order establishes further control over production of electronic equipment (10-27-42).

PD Forms: (Correction)

PD-362...Purchaser's application for glycerine (Not obsolete).

showed that during the course of its studies the committee found in general the inventories of wholesalers and manufacturers are "normal" or below "normal" in relation to sales. This condition has been the result of both an unusually active demand and the limitation of production in many lines.

•

Power Projects Halted

• • • **Following up** its policy of curtailing the flow of critical materials to construction projects, WPB on Oct. 28 revoked priority ratings previously granted to seven power and irrigation projects in the Far West.

Six of the projects including Shasta, Davis, Keswick, Colorado dams, are sponsored by the U. S. Bureau of Reclamation. The seventh involves construction equipment for a section of Grand Coulee Dam. The units affected by the orders had potential generating capacity of 829,100 kw., although rearrangements of available generating units reduces this figure to a net loss of 679,100 kw. The projects affected were scheduled for completion in 1944 or 1945. Priority ratings of most of the projects had been lowered two months ago.

Magnesium Order Extended

Washington

• • • **The magnesium** order, M-2-b, was extended to Dec. 31 by WPB late last week. Originally, it was to have expired Oct. 31.

•

Order to Brass, Wire Sellers

Washington

• • • **Amendment** No. 1 to Order M-9-a, issued Oct. 30, instructs warehouses dealing in brass mill and wire mill products to sell or deliver no such product except to the holders of AA-5 or higher ratings. Previously, provisions of the order read "A-1-k."

Other changes in the amendment provide that no brass or wire mill may file any order unless it has been approved on Form PD-59-d and that toll agreements for the processing of copper, brass mill or wire mill products need no longer be approved by WPB when the metal was acquired after June 30, 1942.

•

M-154 Effective Jan. 1

• • • **Effective date** of scheduling production and delivery under the thermoplastics order, M-154, on Oct. 31 was postponed to Jan. 1 by Amendment 4. The order, which controls the delivery and use of thermoplastics, will continue to operate as in the past. The scheduling provision, requiring producers of raw material to schedule their deliveries, has not yet been made operative.

•

L-30-b to Save Steel

Washington

• • • **Approximately** 10,000 tons of steel will be saved annually, WPB estimates, as the result of Supplemental General Limitation Order L-30-b, laying down rigid style and production restrictions for all types of enameled ware for household, commercial and institutional purposes. In addition, it was pointed out, the order will free facilities for production of the increased quantities of hospital equipment and military equipment such as canteens.

The order accomplishes two objectives:

Effective Oct. 29, it slashes the kinds and types of kitchen enameled ware from a peacetime total of 450 items, to a wartime limitation of 25.

Effective Nov. 1, in addition to cutting iron and steel consumption for the bulk of enameled ware products by 25 per cent, and doubling raw material allotments for hospital equipment, it provides for increased raw material consumption for an essential enameled ware production—water pails. Most of these will be used in hospitals, however.

New Extra Card Issued for NE Steels

Pittsburgh

• • • Carnegie-Illinois Steel Corp. has issued a new extra card covering all the official National Emergency steel specifications and their extras.

These steel extras have been filed from time to time with the OPA but so far had not been included as a group on one extra card.

The same company some time ago issued an extra card including approximately 16 NE steels, but the new extra sheet includes approximately 46 specifications and extras. There has been no change in the extras which have been charged, but there have been slight changes in some of the chemical specifications.

The interest in NE steels continues at a high pitch and various steel companies as well as manufacturers are building up an array of data covering the application and performance of these NE steels.

Extras for Alloy Content, Bars, Bar Strip, Billets, Blooms, Slabs

National Emergency Alternate Composition Ranges for Basic Open-Hearth and Electric Furnace Alloy Steels Subject to Standard Variations for Check Analyses

Designation	CHEMICAL COMPOSITION LIMITS, PER CENT.									Basic Open-Hearth		Electric Furnace	
	Carbon	Manganese	Phosphorus Max.	Sulphur Max.	Silicon	Chromium	Nickel	Molybdenum	Vanadium	Bars & Bar Strip	Billets, Blooms & Slabs	Bars & Bar Strip	Billets, Blooms & Slabs
NE 1330	.28/ .33	1.60/1.90	.040	.040	.20/ .35	—	—	—	—	.10c	$ 2.00	—	—
NE 1335	.33/ .38	1.60/1.90	.040	.040	.20/ .35	—	—	—	—	.10	2.00	—	—
NE 1340	.38/ .43	1.60/1.90	.040	.040	.20/ .35	—	—	—	—	.10	2.00	—	—
NE 1345	.43/ .48	1.60/1.90	.040	.040	.20/ .35	—	—	—	—	.10	2.00	—	—
NE 1350	.48/ .53	1.60/1.90	.040	.040	.20/ .35	—	—	—	—	.10	2.00	—	—
NE 8020	.18/ .23	1.00/1.30	.040	.040	.20/ .35	—	—	.10/ .20	—	.45	9.00	.95c	$19.00
NE 8022	.20/ .25	1.00/1.30	.040	.040	.20/ .35	—	—	.10/ .20	—	.45	9.00	.95	19.00
NE 8339	.37/ .42	1.30/1.60	.040	.040	.20/ .35	—	—	.20/ .30	—	.75	15.00	1.25	25.00
*NE 8442	.40/ .45	1.30/1.60	.040	.040	.20/ .35	—	—	.30/ .40	—	.90	18.00	1.40	28.00
NE 8613	.12/ .17	.70/ .90	.040	.040	.20/ .35	.40/ .60	.40/ .60	.15/ .25	—	.75	15.00	1.25	25.00
NE 8615	.13/ .18	.70/ .90	.040	.040	.20/ .35	.40/ .60	.40/ .60	.15/ .25	—	.75	15.00	1.25	25.00
NE 8617	.15/ .20	.70/ .90	.040	.040	.20/ .35	.40/ .60	.40/ .60	.15/ .25	—	.75	15.00	1.25	25.00
NE 8620	.18/ .23	.70/ .90	.040	.040	.20/ .35	.40/ .60	.40/ .60	.15/ .25	—	.75	15.00	1.25	25.00
NE 8630	.28/ .33	.70/ .90	.040	.040	.20/ .35	.40/ .60	.40/ .60	.15/ .25	—	.75	15.00	1.25	25.00
NE 8715	.13/ .18	.70/ .90	.040	.040	.20/ .35	.40/ .60	.40/ .60	.20/ .30	—	.80	16.00	1.30	26.00
NE 8720	.18/ .23	.70/ .90	.040	.040	.20/ .35	.40/ .60	.40/ .60	.20/ .30	—	.80	16.00	1.30	26.00
NE 8722	.20/ .25	.70/ .90	.040	.040	.20/ .35	.40/ .60	.40/ .60	.20/ .30	—	.80	16.00	1.30	26.00
NE 8735	.33/ .38	.75/1.00	.040	.040	.20/ .35	.40/ .60	.40/ .60	.20/ .30	—	.80	16.00	1.30	26.00
NE 8739	.35/ .40	.75/1.00	.040	.040	.20/ .35	.40/ .60	.40/ .60	.20/ .30	—	.80	16.00	1.30	26.00
NE 8740	.38/ .43	.75/1.00	.040	.040	.20/ .35	.40/ .60	.40/ .60	.20/ .30	—	.80	16.00	1.30	26.00
NE 8744	.40/ .45	.75/1.00	.040	.040	.20/ .35	.40/ .60	.40/ .60	.20/ .30	—	.80	16.00	1.30	26.00
NE 8749	.45/ .50	.75/1.00	.040	.040	.20/ .35	.40/ .60	.40/ .60	.20/ .30	—	.80	16.00	1.30	26.00
*NE 8949	.45/ .50	1.00/1.30	.040	.040	.20/ .35	.40/ .60	.40/ .60	.30/ .40	—	1.20	24.00	1.70	34.00
NE 9255	.50/ .60	.70/ .95	.040	.040	1.80/2.20	—	—	—	—	.40c	8.00	—	—
NE 9260	.55/ .65	.75/1.00	.040	.040	1.80/2.20	—	—	—	—	.40	8.00	—	—
NE 9262	.55/ .65	.75/1.00	.040	.040	1.80/2.20	.20/ .40	—	—	—	.65	13.00	—	—
NE 9415	.13/ .18	.80/1.10	.040	.040	.40/ .60	.20/ .40	.20/ .40	.08/ .15	—	.80	16.00	1.30c	$26.00
NE 9420	.18/ .23	.80/1.10	.040	.040	.40/ .60	.20/ .40	.20/ .40	.08/ .15	—	.80	16.00	1.30	26.00
NE 9422	.20/ .25	.80/1.10	.040	.040	.40/ .60	.20/ .40	.20/ .40	.08/ .15	—	.80	16.00	1.30	26.00
NE 9430	.28/ .33	.90/1.20	.040	.040	.40/ .60	.20/ .40	.20/ .40	.08/ .15	—	.80	16.00	1.30	26.00
NE 9435	.33/ .38	.90/1.20	.040	.040	.40/ .60	.20/ .40	.20/ .40	.08/ .15	—	.80	16.00	1.30	26.00
NE 9437	.35/ .40	.90/1.20	.040	.040	.40/ .60	.20/ .40	.20/ .40	.08/ .15	—	.80	16.00	1.30	26.00
NE 9440	.38/ .43	.90/1.20	.040	.040	.40/ .60	.20/ .40	.20/ .40	.08/ .15	—	.80	16.00	1.30	26.00
NE 9442	.40/ .45	1.00/1.30	.040	.040	.40/ .60	.20/ .40	.20/ .40	.08/ .15	—	.85	17.00	1.35	27.00
NE 9445	.43/ .48	1.00/1.30	.040	.040	.40/ .60	.20/ .40	.20/ .40	.08/ .15	—	.85	17.00	1.35	27.00
NE 9450	.48/ .53	1.20/1.50	.040	.040	.40/ .60	.20/ .40	.20/ .40	.08/ .15	—	.85	17.00	1.35	27.00
*NE 9537	.35/ .40	1.20/1.50	.040	.040	.40/ .60	.40/ .60	.40/ .60	.15/ .25	—	1.20	24.00	1.70	34.00
*NE 9540	.38/ .43	1.20/1.50	.040	.040	.40/ .60	.40/ .60	.40/ .60	.15/ .25	—	1.20	24.00	1.70	34.00
*NE 9542	.40/ .45	1.20/1.50	.040	.040	.40/ .60	.40/ .60	.40/ .60	.15/ .25	—	1.20	24.00	1.70	34.00
*NE 9550	.48/ .53	1.20/1.50	.040	.040	.40/ .60	.40/ .60	.40/ .60	.15/ .25	—	1.20	24.00	1.70	34.00
NE 9630	.28/ .33	1.20/1.50	.040	.040	.40/ .60	.40/ .60	—	—	—	.80	16.00	1.30	26.00
NE 9635	.33/ .38	1.20/1.50	.040	.040	.40/ .60	.40/ .60	—	—	—	.80	16.00	1.30	26.00
NE 9637	.35/ .40	1.20/1.50	.040	.040	.40/ .60	.40/ .60	—	—	—	.80	16.00	1.30	26.00
NE 9640	.38/ .43	1.20/1.50	.040	.040	.40/ .60	.40/ .60	—	—	—	.80	16.00	1.30	26.00
NE 9642	.40/ .45	1.30/1.60	.040	.040	.40/ .60	.40/ .60	—	—	—	.85	17.00	1.35	27.00
NE 9645	.43/ .48	1.30/1.60	.040	.040	.40/ .60	.40/ .60	—	—	—	.85	17.00	1.35	27.00
NE 9650	.48/ .53	1.30/1.60	.040	.040	.40/ .60	.40/ .60	—	—	—	.85	17.00	1.35	27.00

* Recommended for large sections only.

Following notes apply to both standard and National Emergency Specifications:

NOTE 1—The ranges shown above are restricted to sizes 100 sq. in. or less or equivalent cross sectional area 18 in. wide or under with a maximum individual piece weight of 7,000 lb. irrespective of size.

NOTE 2—For steels ordered to the above ranges, below the size and weight restriction, the average of all the chemical checks must be within the limits specified subject to check analysis variations given in Table 4, Section 10, Steel Products Manual.

NOTE 3—When acid open-hearth is specified and acceptable add to basic open-hearth alloy differential .25c per lb. for bars and bar-strip; $5.00 per gross ton for billets, blooms, and slabs.

The Iron Age Critical Tool Locating Chart

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Compiled from latest WPB data on available machine tool capacity.

CRITICAL TOOLS	REGIONAL OFFICES—WAR PRODUCTION BOARD											
	Total	No. 1 Boston	No. 2 New York	No. 3 Philadelphia	No. 4 Atlanta	No. 5 Cleveland	No. 6 Chicago	No. 7 Kansas City	No. 8 Dallas	No. 10 San Francisco	No. 11 Detroit	No. 12 Minneapolis
BORING												
Horizontal—3" Bar	53,660	7,432	12,636	6,182	.....	10,455	7,476	1,332	2,230	1,401	3,491	1,025
" —To 4" Bar and Over	60,744	5,873	6,943	9,295	.....	18,266	8,004	3,422	1,830	2,939	2,827	1,345
Vertical—54"	34,917	4,298	4,574	5,211	.....	8,284	3,963	3,636	1,599	434	832	8,175
" —To 84"	50,875	4,291	6,099	7,922	.....	13,960	5,181	3,733	3,801	3,028	1,257	1,601
" —To 120"	16,961	1,795	2,700	2,226	.....	5,421	1,854	1,231	344	370	642	.....
" —Over 120"	6,155	.....	1,512	1,284	.....	1,809	999	346	37	.....	.....	165
Jig Borers	32,075	8,118	6,888	2,760	.....	5,091	4,639	931	114	688	2,733	113
Misc. Precision—Heald—Ex-Cell-O type	20,688	1,663	1,045	1,223	.....	8,868	4,283	1,420	138	1,216	484	348
BROACHING	71,952	15,185	9,407	4,989	.....	16,841	12,228	3,613	1,326	1,488	5,050	1,825
DRILLING												
Radial 6' to 8' Radius	74,768	7,186	13,817	12,006	.....	22,142	7,235	4,941	2,838	476	2,601	1,526
Over 8' Radius	3,944	138	853	1,186	.....	292	96	120	1,007	120	72	60
DUPLICATING AND PROFILING	30,470	10,895	7,078	3,425	.....	3,919	3,454	571	.....	226	764	138
FORGING												
Drop—Hammer—Board 100 lb. up	127,557	39,291	41,257	9,572	.....	22,712	11,827	936	762	168	204	828
Steam 5000 lb. up	9,665	2,447	1,181	595	.....	2,711	703	945	.....	.....	695	388
Press—Forging—Steam Hydr. 500 ton	8,185	1,016	3,474	176	.....	2,275	982	202	.....	.....	60	.....
GEAR CUTTING												
Gear Hobbers—48" and up	20,918	2,452	1,292	2,575	.....	7,195	2,385	1,842	901	100	1,342	834
Bevel Gear Cutters	49,310	11,105	4,241	7,515	.....	13,946	6,395	1,862	776	604	2,598	268
GRINDERS												
Centerless	36,155	8,092	4,502	3,322	.....	7,610	3,975	2,181	72	997	5,188	216
External Cyl.	400,834	98,231	77,604	37,948	.....	59,204	46,969	25,601	4,922	8,608	29,791	11,956
Internal Cyl.	132,051	26,104	16,590	12,348	.....	22,485	18,145	13,058	4,790	3,820	10,918	3,793
Thread	4,346	929	1,375	676	.....	632	350	.....	168	.....	132	84
LATHES												
Engine—24" Dia.—Over 60" c.-c.	218,196	30,709	38,076	28,395	.....	48,265	22,778	14,128	15,625	4,406	7,132	8,682
" —Over 24" Dia.—To 60" c.-c.	88,530	14,168	20,285	9,412	.....	14,854	10,672	9,560	2,248	2,328	2,375	2,628
" —Over 24" Dia.—To 96" c.-c.	138,343	17,822	24,712	16,402	.....	33,163	12,372	14,593	8,403	3,575	3,429	3,872
" —Over 24" Dia.—Over 96" c.-c.	336,235	46,868	45,017	54,488	.....	72,053	28,593	29,791	28,248	12,179	11,045	7,953
Turret —12" Dia. 2½" Bar and up	96,981	13,149	23,618	13,844	.....	20,010	9,706	8,526	1,446	191	3,867	2,624
" —To 24" Dia. 2½" Bar and up	167,523	21,252	25,796	22,036	.....	35,416	16,268	15,752	7,992	8,205	8,267	6,539
" —Over 24" Dia. 2½" Bar and up	41,043	3,119	6,076	6,372	.....	8,070	6,447	3,717	2,764	2,646	706	1,126
Automatic—12" Diameter	15,975	2,485	1,831	880	.....	811	6,505	1,134	336	612	1,152	229
" —To 24" Diameter	16,879	2,002	1,614	226	.....	1,731	1,373	570	.....	2,358	6,776	229
" —Over 24" Diameter	2,561	.....	816	48	.....	168	1,473	.....	.....	.....	.....	56
SCREW MACHINES												
Automatic—Single 1"	77,793	15,672	26,184	8,439	.....	13,708	8,385	2,006	336	23	1,950	1,090
" —Single to 3"	77,762	13,603	17,487	8,803	.....	15,232	14,219	3,275	168	931	3,618	426
" —Single—Over 3"	15,323	2,354	1,550	1,518	.....	2,326	6,177	402	.....	192	804	.....
" —Multiple—To ¾"	7,045	684	2,502	1,112	.....	534	560	.....	.....	.....	1,653	.....
" —Multiple—To 1"	94,195	19,409	17,636	9,345	.....	14,333	14,085	3,202	.....	456	14,781	948
" —Multiple—To 3"	65,458	10,118	8,593	8,762	.....	15,261	11,606	4,396	.....	2,184	4,538	.....
" —Multiple—Over 3"	5,057	143	108	116	.....	1,136	2,910	.....	.....	300	344	.....
MILLING												
Standard Type—Horizontal—No. 3	221,016	45,948	38,501	23,114	.....	43,401	27,459	10,216	7,274	3,839	13,893	7,371
" " —Horizontal—Over No. 3	111,880	14,682	21,818	17,668	.....	23,256	9,718	8,415	4,328	3,873	5,423	2,699
" " —Vertical—No. 3	42,512	12,145	7,286	2,927	.....	8,428	5,709	1,478	398	124	3,678	339
" " —Vertical—Over No. 3	45,638	14,198	4,847	6,931	.....	9,580	3,459	1,339	642	541	3,155	846
Mfg.—Horizontal—12" table width	27,624	9,280	4,486	1,177	.....	4,000	5,082	978	120	629	1,042	830
" —Horizontal—Over 12" table width	17,504	2,727	1,959	697	.....	5,413	4,881	834	.....	140	636	217
Planer—Over 30" table width—slab mill	8,014	2,040	1,154	990	.....	2,022	288	532	.....	.....	376	612
" —Over 30" table width—side spdl.	2,508	511	186	931	.....	185	159	144	128	.....	.....	264
" —Over 30" table width—vert. spdl.	6,929	1,540	1,562	867	.....	1,279	361	.....	148	.....	558	614
" —Over 30" table width—side and vert.	9,185	2,808	617	842	.....	2,359	1,734	192	.....	60	441	132
Misc. and Dia. Cutting—Heller Type	12,240	5,819	5,376	1,404	.....	4,438	952	316	.....	100	844	.....
PLANERS												
60" wide to 15'	10,899	1,102	1,110	1,947	.....	2,816	1,599	1,131	814	150	230	.....
60" wide, over 15'	4,592	666	245	798	.....	1,108	845	530	272	.....	128	.....
Over 60" wide to 15'	2,597	278	379	501	.....	538	168	202	37	98	144	252
Over 60" wide, over 15'	7,609	1,004	1,119	2,342	.....	1,937	232	339	112	88	276	160
THREADERS												
External Mills	28,440	6,235	4,107	9,673	.....	4,558	3,455	1,132	808	2,278	2,300	894
Internal Mills	3,774	66	209	305	.....	1,322	1,260	216	336	60	.....	.....
TOTAL AVAILABLE HOURS	3,281,099	591,147	581,930	388,659	.....	567,929	392,633	210,969	110,638	79,249	177,242	80,703

The available critical tool hours per week here shown are based on an 168-hour week and represent usable tool hours subject to operating labor available. Reports are based on initial inspection of the plants concerned by engineers trained for this work. The War Production Board Field Offices are acting as clearing houses for all public or private contractors or agencies interested in using these facilities.

When making inquiries regarding the availability of these critical tool hours for specific jobs, communicate in detail with the Regional Supervisor, Critical Tools Service, in the WPB Region best located for your job. They are:

Region	*Supervisor*	*Assistant*	*WPB Office*
No. 1 Boston	R. F. Wood	H. H. Whitcomb	17 Court Street
No. 2 New York	J. J. Carroll	C. Philippi	122 E. 42nd Street
No. 3 Philadelphia	C. E. Reinicker	R. V. Hilands	1617 Penn. Blvd.
No. 5 Cleveland	C. J. Perrier	C. R. Griffith	Union Commerce Bldg.
No. 6 Chicago	S. C. Bloom	W. I. Buhl	20 N. Wacker Dr.
No. 7 Kansas City	W. A. Crooks	P. J. Leonard	Mutual Interstate Bldg.
No. 8 Dallas	B. P. Rhineford	W. E. White	4th Fl., Fidelity Bldg.
No. 11 Detroit	R. O. Cunningham	J. B. Shepard	7310 Woodward Avenue
No. 12 Minneapolis	E. H. Pitney		326 Midland Bk. Bldg.

PERSONALS . . .

• **T. G. Bergin** formerly with American Steel & Wire Co., Worcester, in the open hearth, rolling mill, wire mill and metallurgical departments and for the past four years at the New Haven plant as work metallurgist, specializing on high carbon heat treating and wire drawing has been placed in charge of the wire heat treating division of the A. F. Holden Co., New Haven, Conn. **Anson B. Albree,** who formerly was assistant metallurgist at Wetherell Brothers Co., Cambridge, Mass., and more recently with the Bridgeport Grinding Machine Co., West Haven, Conn., as purchasing agent and metallurgist, has become associated with the A. F. Holden Co. at their West Haven plant and has been assigned to research and development of new products.

• **R. W. Hyde** and **R. J. Phipps** have been appointed assistant treasurers of Carnegie - Illinois Steel Corp., Pittsburgh. As credit managers for the Central Eastern areas, respectively, they will continue in these capacities in addition to their new responsibilities. Mr. Hyde entered the employ of Carnegie Steel Co. in the credit department in 1922. He was promoted through various positions in the department and in 1940 was appointed assistant credit manager of Carnegie-Illinois Steel Corp. In 1941 he was made credit manager of the Central area with headquarters in Pittsburgh. Mr. Phipps entered the employ of American Sheet & Tin Plate Co.'s accounting bureau in 1912. After being promoted through various positions in the company, he was transferred to Chicago in 1935 as the Western credit representative of the American Sheet & Tin Plate Co. In 1936 when this company became a part of the Carnegie-Illinois Steel Corp. Mr. Phipps became assistant credit manager in the Western area. In 1941 he was transferred back to Pittsburgh as credit manager, Eastern area. **Norris E. Crull,** credit manager, Western area, was named an assistant treasurer of the company with headquarters in Chicago.

• **John B. Jenkins** has been named manager of the Hydraulic division, Twin Disc Clutch Co., Rockford, Ill. For the last eight years, Mr. Jenkins has been in charge of the company's factory branches at St. Louis, Tulsa and Dallas.

• **George Anderson,** who has been associated with the National Forge Co. for 13 years, has been named field engineer in charge of the western Pennsylvania, western Maryland, West Virginia and western Virginia territories. Mr. Anderson had been in the plant production department for seven years and for the past six years has been in the sales department of the company, handling estimating and advertising.

T. G. BERGIN, above, work metallurgist, and A. B. ALBREE, of research and development department, A. F. Holden Co., West Haven, Conn.

• **Earl Wesselhoff** has been appointed manager of the Boston branch of the Morse Chain Co., Ithaca, N. Y., succeeding **C. L. Pratt, Jr.,** who has resigned. Mr. Wesselhoff goes to Boston from the Detroit plant where his first association started 22 years ago as automotive timing chain drive engineer. Since he joined Morse he has served in several engineering capacities and was subsequently promoted to the dual position of chief engineer and sales director of the Morse Indexing & Free-Wheeling Clutch Lines.

• **John Berry, Jr.,** formerly assistant treasurer of the Bell Aircraft Corp., Buffalo and Niagara Falls, has been appointed to the newly-created position of comptroller. Before joining Bell about a year ago, Mr. Berry was assistant manager of the Buffalo office of Price, Waterhouse & Co. **Herbert H. Munsey,** patent counsel for Bell, has been elected chairman of the corporation's labor - management committee.

• **George E. Clifford** has been elected a vice-president of National Supply Co., Pittsburgh. He will supervise the sales of certain munitions, in addition to his present responsibilities as vice-president in charge of sales for Spang Chalfant, Inc.

• **James B. Turpin,** agent for the Midwest Steel Co., St. Louis, died Oct. 27 of heart disease, aged 62 years. He was secretary-treasurer of the Continental Portland Cement Co. for 10 years before joining Midwest.

George B. Shaw has been made sales engineer of the Keystone Carbon Co., St. Marys, Pa. He will devote his efforts to the promotion of Keystone negative temperature coefficient resistance material, a recent development of the company.

Harry K. Yontz, who has been with the Pittsburgh Coal Co. for 28 years, has been elected auditor and **Howard D. McPeake** has been appointed assistant auditor. **Charles L. Snyder,** former auditor, has resigned.

Cited for Award

• • • **The following** industrial plants have been recently named to receive awards for outstanding production on war work:

Army-Navy "E"

American Optical Co., Southbridge, Mass.
Aviation Corp., Lycoming Division, Williamsport, Pa.
Century Machine Co., Cincinnati.
Colt's Patent Fire Arms Mfg. Co., Park Street, Van Dyke Avenue, and Flower Street Plants, Hartford.
Connecticut Telephone and Electric Corp., Meriden, Conn.
High Standard Mfg. Co., New Haven, Conn.
R. Krasberg and Sons Mfg. Co., Chicago.
Lapp Insulator Co., Le Roy, N. Y.
Otis Elevator Co., Aeronautical Division, Harrison, N. J.
Pillsbury Flour Mills Co., Springfield, Ill.
Read and Lovett Mfg. Co., Weatherly, Pa.
Schauer Machine Co., Cincinnati.
Semet-Solvay Co., Solvay, N. Y.
South Bend Lathe Works, South Bend, Ind.
Standard Gage Co., Inc., Poughkeepsie, N. Y.
Storage Battery Division, Philco Corp., Philadelphia.
Summerill Tubing Co., Bridgeport, Pa.
Sunnen Productions Co., St. Louis.
Supreme Knitting Machine Co., Brooklyn.
Switlik Parachute Co., Trenton, N. J.
Titanine, Inc., Union, N. J.
E. H. Titchener & Co., Binghamton, N. Y.
Titeflex Metal Hose Co., Newark.
Wheeling Corrugating Co., Wheeling, W. Va.
S. S. White Dental Mfg. Co., Prince Bay, Staten Island, N. Y.
John Wood Mfg. Co., Muskegon, Mich.

Maritime Commission "M"

Oregon Shipbuilding Corp., Portland, Ore. (fifth award)
North Carolina Shipbuilding Co., Wilmington, N. C. (second award)
Richmond Shipyards Nos. 1 and 2, Richmond, Cal. (second award)
Houston Shipbuilding Corp., Houston.
Alabama Dry Dock & Shipbuilding Co., Mobile, Ala.
A. P. Green Fire Brick Co., Mexico, Mo.
Homestead Valve Mfg. Co., Inc., Coraopolis, Pa.
Linde Air Products Co., Inc., New York.
Minneapolis-Moline Power Implement Co., Minneapolis.
Russell & Erwin Mfg. Co., New Britain, Conn.
Security Engineering Co., Inc., Whittier, Cal.
Whitin Machine Works, Whitinsville, Mass.

DPC Plant Awards

Washington

• • • **Defense Plant Corp.,** RFC subsidiary, has authorized the following contracts:

Chase Brass & Copper Co., Inc., Waterbury, Conn., to provide for additional equipment in a plant in Ohio, at a cost in excess of $950,000, making a total commitment of more than $20,000,000.

Menasco Mfg. Co., Burbank, Calif., to provide additional plant facilities in California at a cost in excess of $150,000, making a total commitment of more than $3,300,000.

Romec Pump Co., Elyria, Ohio, to provide additional plant facilities in Ohio at a cost in excess of $150,000, making a total commitment of more than $475,000.

Vultee Aircraft, Inc., Nashville, Tenn., to provide equipment and machinery in California at a cost in excess of $350,000.

Chicago Pneumatic Tool Co., New York, to provide machinery and equipment to be placed in a plant in Michigan, at a cost in excess of $140,000.

National Carbon Co., Inc., New York, for machinery and equipment to be placed in a plant in Ohio, at a cost in excess of $100,000.

Servel, Inc., Evansville, Ind., to provide for additional equipment in a plant in Indiana, at a cost in excess of $35,000, making a total commitment of more than $90,000.

OBITUARY . . .

• **Charles Hotchkiss Norton,** who had been long associated with the Norton Co., Worcester, died Oct. 26. He was 91 years old. Mr. Norton first became associated with the Norton Co. in 1900 when the then Norton Emery Wheel Co. founded the Norton Grinding Co. He was designer and chief engineer of the new company which was set up to introduce his methods of cylindrical grinding and to manufacture machinery of his own invention and design. When Norton Grinding Co. was merged with Norton Co. in 1919, he became chief engineer for the machine division. He has not been actively associated with the company for a number of years. Among his previous connections were as assistant engineer at the Brown & Sharpe Mfg. Co., Providence, and as a partner in the firm of Leland, Faulconer & Norton Co., Detroit, which is now the Cadillac Automobile Co.

The late C. H. NORTON, associated with the Norton Co. from 1919 until his resignation.

• **Nelson Jarvis Darling,** manager of General Electric's West Lynn and River Works, died Oct. 26 at his Beach Bluffs, Mass., home after an illness of a few months. He was 58 years old.. He was graduated from Cornell University. He had previously been employed at General Electric, Schenectady, during summer vacations as a draftsman, and upon his graduation joined the G-E test course as a student engineer. In 1909, Mr. Darling went to the Panama Canal Zone with the Dodge & Day Co. to assist in the installation of electrical apparatus. After returning to General Electric in December of that year, he served in the company's railroad engineering department at Schenectady until his transfer to the Erie, Pa., plant. In November of 1918 he was appointed assistant manager of the Erie plant, and in 1922 manager of the River Works at Lynn, Mass. In September, 1935, Mr. Darling was named manager of the General Electric West Lynn Works.

NON-FERROUS METALS

. . . *Market Activities and Price Trends*

Metals Reserve to Subsidize Two Canadian Copper Mines

• • • **Metals Reserve Corp.** will subsidize the Britannia Mining & Smelting Co. at Howe Sound and the Granby Consolidated Mining Co. at Copper Mountain, the two Canadian copper mines which recently came under control of the Canadian government, it has been announced. The mines were taken over when output dropped drastically as a result of severe labor shortages. The two mines had been losing money under the fixed price for copper. The United States will get the mines' output, and the only part the Canadian government now will have in the deal is to supervise the accounting at the mines, as an agent of the Metals Reserve Corp., and to provide urgently needed labor.

Jesse Jones, Secretary of Commerce, has announced that Anaconda Copper Mining Co. has acquired a 52½ per cent interest in Basic Magnesium, Inc., a management company, for $75,000, and will conduct operations at the Las Vegas magnesium plant for Defense Plant Corp. Anaconda will get ½c. a lb. on the magnesium produced, a figure equivalent to about 2 per cent of sales. The plant is owned by DPC, which bought ore lands near Gabbs, Nev., for $450,000 and built the plant for $100,000,000.

Copper-nickel output of International Nickel Co. of Canada, Ltd., will be increased 10 per cent in December, as a result of plant increases costing $25,000,000 which are now nearing completion. At that time, 1800 additional workers will be required, some of whom, it is hoped, will come from the gold mines in Kirkland Lake and Porcupine areas.

The WPB further reduced use of copper in buildings last week under an amendment to order M-9-c-4. Copper is now prohibited for use as water pipe, even though the fabricated tubing is in the hands of the user. As a result, a number of cities whose municipal water departments formerly used copper have turned to lead. Among these are Madison, Wis., and Detroit. Chicago and New York having always used lead, do not need to make a switch. Studies of lead as a substitute are now being made by the War Department. Among the items for which a switch is pondered are diecastings, plugs for shell ends before the fuse is inserted, and enamel ware, in which a lead foundation coating would replace zinc.

A new molybdenum deposit, at least 400 ft. long, 200 ft. deep and 30 ft. wide running 0.92 per cent molybdenum has been found 400 miles northwest of the city of Quebec, G. C. Bateman, Canadian metals controller, has announced. Dome Mines, Ltd., one of Canada's leading gold producers has acquired more than 4000 acres in the area and plans to start production early in 1943. Another molybdenum source under consideration is at High Lake on the Ontario-Manitoba boundary, for which Wartime Metals Corp., Ltd., a government owned company, has made a deal. If test results are favorable, the government will operate the mine on a royalty basis. The Quebec deposit appears to be the largest and best ever found in Canada. (See THE IRON AGE, Oct. 1, p. 104.)

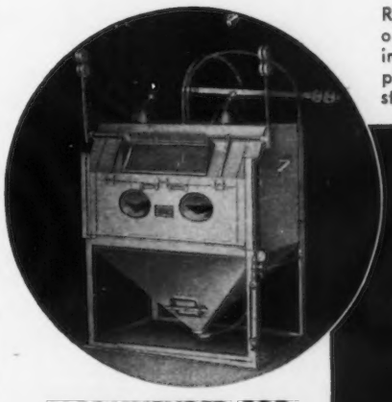
The monthly average prices of the major non-ferrous metals during October were, in reality, the OPA ceiling prices set on those metals. These prices are as follows:

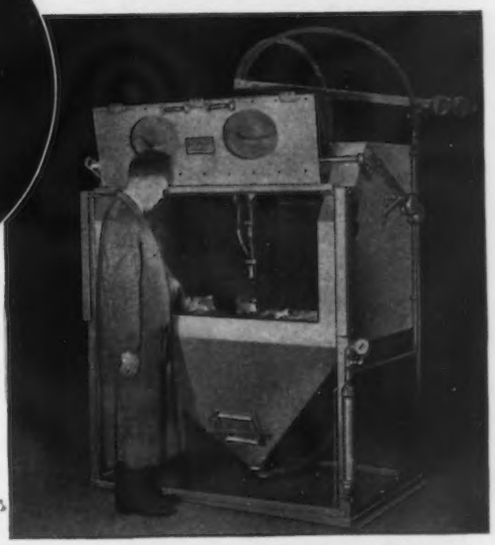
	Cents per lb.
Electrolytic Copper, Connecticut Valley	12.00
Lake Copper, Eastern Delivery	12.00
Straits Tin, Spot, New York	52.00
Zinc, East St. Louis	8.25
Zinc, New York	8.65
Lead, St. Louis	6.35
Lead, New York	6.50

SAND BLASTING *Made Easy*

for War Production!

Ruemelin Sand Blast Cabinets put blast cleaning operations on a faster, more efficient basis. Eliminate dust, permitting installation anywhere in the plant. No skilled labor required. Sturdily constructed. Handles sand or steel abrasives.





RECOMMENDED FOR:

1. Heat treating plant — removing scale, oxides.
2. Aircraft production — cleaning welds, metal preparation.
3. Foundries, ferrous and nonferrous — cleaning castings.

RUEMELIN MANUFACTURING CO.
3960 N. Palmer St • Milwaukee, Wis.

Ruemelin cabinet with door open. Provides quick access for loading and unloading.

RUEMELIN Blast Cleaning Cabinets

MACHINE TOOLS

. . . Sales, Inquiries and Market News

Advance Buying of Tools Points to Dangers Ahead

Cleveland

• • • **Advance buying of machine tools** is beginning to cause some consternation among builders and dealers. For example, one operator in the Cleveland area this week placed an order with a dealer for two machines, one to be delivered around the middle of 1943 and the other to be delivered early in 1944. At the present time, the average delivery date on this type of machine is four months, but the customer is anticipating his needs to one and a quarter years ahead of time.

Obviously, current deliveries do not warrant such advance buying. The question is, in cases such as this: "Will the customer actually accept delivery of these tools when the delivery date falls due or will he cancel the order shortly before delivery?" How much of this type of ordering is now being carried on the books of builders and suppliers is a question that they would like answered. If there is much of this type of business already scheduled, dealers and builders may run into difficult times before long.

In servicing machine tools, the ownership of the tools in various plants throughout the Cleveland area has caused some trouble. Many of these tools are loaned or leased by government agencies and by private companies such as Wright Aeronautical, Curtiss-Wright, and some of the other larger war goods manufacturers. Recently the Springfield Arsenal purchased a large number of tools and through the Springfield Ordnance placed these tools in various plants throughout the Cleveland area.

When it became necessary for some servicing to be done on these tools and the service engineer tried to determine who actually owned the tools, he found that the user, the Ordnance Department and the Arsenal all had a hand in the purchase, distribution and use of the tools.

Naturally the service people and dealers in machine tools would like to know what machines come into the area to stay and since new machines get service that is normally not rendered second-hand or used tools, the service people are in trouble trying to determine whether or not a machine tool should be serviced. It is estimated that at the present time there are 2000 machine tools in the Cleveland area being used by people and companies who do not own them.

Brainard Asks Machine Tool Builders to Merge Work

Washington

• • • **In order to fulfill** developing requirements, machine tool producers on Monday were called upon to cut their over-all production time by nearly a third in a statement by George C. Brainard, WPB director of the Tools Division. "To speed the job of defeating the Axis," he said, "producers will have to distribute orders among themselves more evenly. Concerns with high backlogs will have to farm out work to those whose backlogs are smaller. Subcontracting will be necessary on a larger scale. However it is done, every machine will have to be worked at its practical maximum, every foot of floor space will have to be fully utilized, every man and woman in the industry will have to strain," Mr. Brainard said. The current backlog on the books of machine tool buildings alone was said to be well in excess of $1,000,000,000.

"The nature of the machine tool industry," Mr. Brainard continued, "is such that this backlog is not evenly distributed. One machine tool builder may be able to make delivery of a newly ordered tool in four months, while another builder of a comparable tool may have so many orders that he cannot deliver for 12 to 18 months. Obviously, the war will not wait for 18 months. Ways and means must be found to distribute the load. This means that orders will have to be transferred from one plant to another, to obtain earlier deliveries."

Mr. Brainard pointed out that the industry already has scored a noteworthy record of accomplishment. September production of more than $120,000,000 was almost seven times the normal peace-time output. Since the beginning of the year, production has advanced 40 per cent and is still climbing.

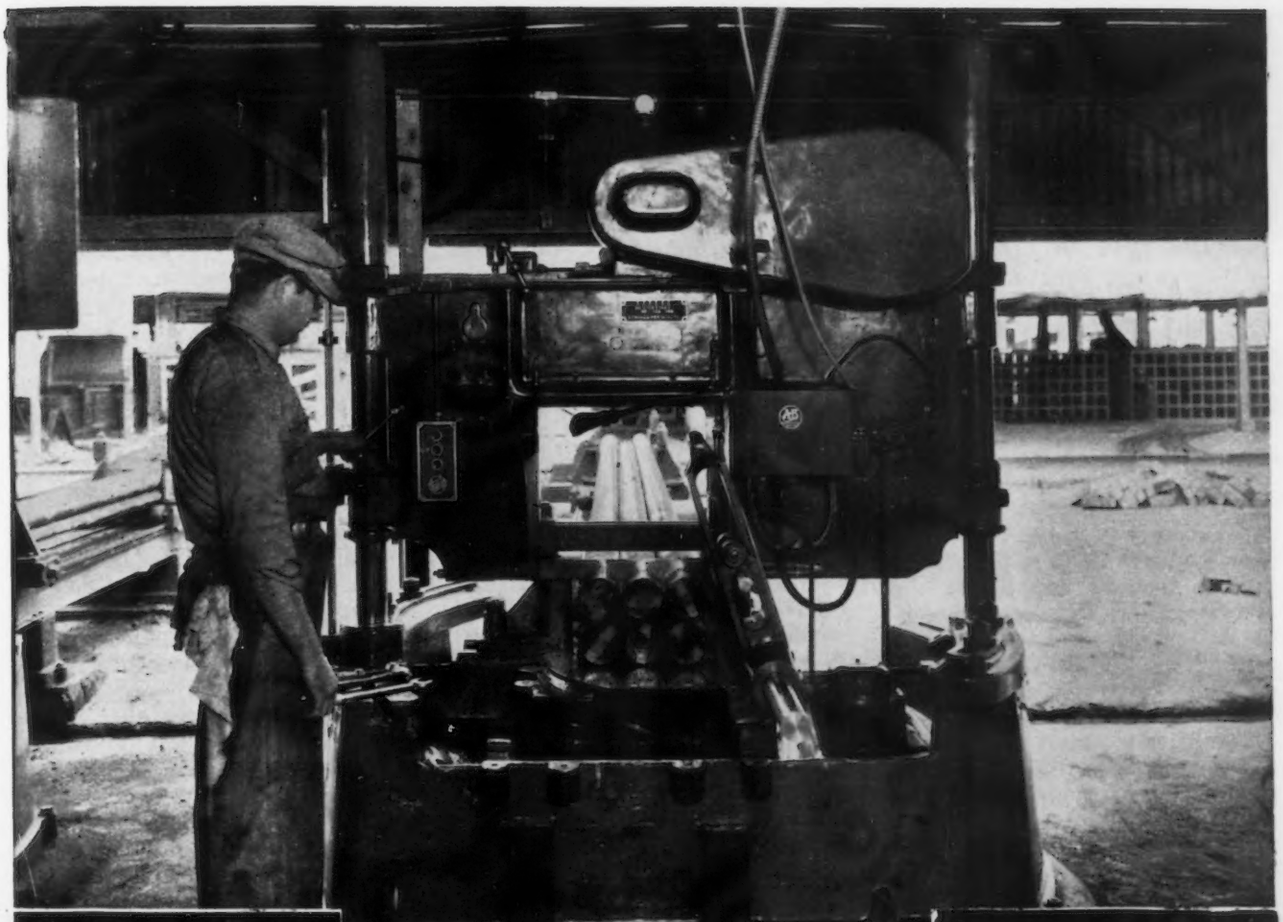
Obtaining Steel, Tool Industry's Most Pressing Problem

• • • **Although the machine tool industry** has been assigned high priority ratings and has been promised about 90 per cent of the steel it has asked for in the fourth quarter on the PRP plan, advices from some steel suppliers indicate that it may take more than that to put machine tool builders on the shipping list. Priorities of AA-2X do not mean much in these days of superpriorities on steel. Although no operations in tool plants have been slowed up to any extent yet for lack of materials, fear is expressed for the future, as material for fabrication several months hence is now being ordered.

Every effort is being made to impress on WPB officials the seriousness of the situation. While the machine tool industry consumes less than 1 per cent of the total ouput of finished steel, its allocation to the industry is vital to the whole war program. The industry attitude at present is: "No steel, no machine tools!" Mandatory allocation of steel to the industry seems to be the only answer, according to leaders in the machine tool industry.

Prizes Offered for Data on Maintenance

• • • **In the interest** of industrial conservation, and to help speed war production, Metallizing Engineering Co., Inc., is offering a total of $650 in war bonds for details of maintenance and salvage procedures with the metal spraying process. First prize is $250, second prize $150, third prize $100, and three prizes of $50 each. Contest closes Dec. 15. Complete information and entry forms obtainable from Metco News, 21-07 41st Avenue, Long Island City, New York.



MARVEL SAWS

Cut anything that will go between the jaws

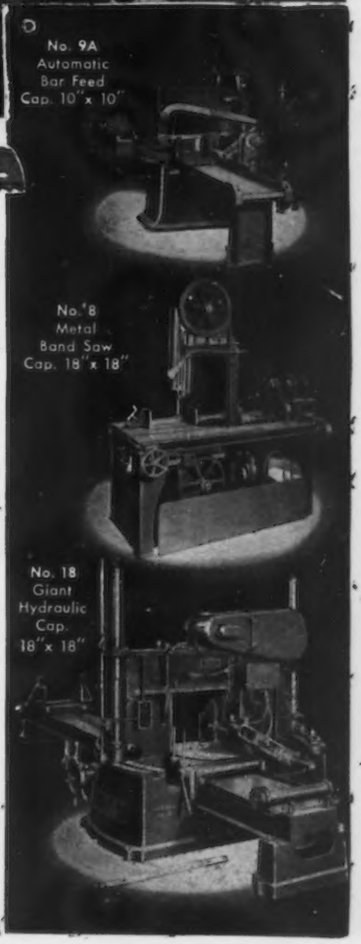
This is one of five No. 18 MARVEL Giant Hydraulic Hack Saws used by a well known Texas tool company to cut-off "multiple bars of alloy steel in round, square, and flat shapes, up to the maximum capacity of the large work-throat (18" x 18")".

These super hack saws are designed for the largest sizes, and toughest steels—up to 18" x 18". After a year's heavy duty service, when asked as to the effectiveness of these saws in solving the cutting-off problems at this plant, the mechanical engineer in charge reported them "very effective."

ARMSTRONG-BLUM MFG. CO.

"The Hack Saw People"

5700 Bloomingdale Ave. Chicago, U. S. A.
Eastern Sales Office: 225 Lafayette St., New York



SCRAP

. . . Market Activities and Quotation Trends

Mills Using Largest Tonnages in History; More Effort Needed

• • • **With the largest** scrap tonnages in history now being consumed in this nation, vigorous public efforts to find more material must be continued, it became apparent last week.

The huge total of scrap collected so far in the national newspaper drive (over 4,800,000 tons) is equivalent to only a little more than a month's supply, at the present record rate of consumption. Subtracting unusable and nonferrous material from the grand total leaves barely a month's requirements.

The drive to obtain more industrial scrap seems to be having good effect particularly in small plants which did not clean out as thoroughly as the larger plants in earlier campaigns. However, some large amounts have been found in places supposedly cleaned out previously. Benjamin Cline of Lukens Steel Co., a volunteer in the campaign, reported exploring a shipyard and finding the following dormant scrap: one apron brake, 2000 lb.; a top of an old punch, about 3000 lb. including a gear; a small electric hoist; a dowel pin machine; some pontoon hatch covers; two old deck houses, and a small hose coupling machine. Some of the material may be usable.

The necessity for continued efforts to bring out scrap is becoming increasingly apparent. Mills are eating up volunteered material at a terrific clip. It was estimated by Irving Olds, chairman of U. S. Steel Corp., last week, that ingot operations of 100 to 101 per cent of capacity such as have been reached recently are the equivalent of 110 to 111 per cent of rated capacity in 1940. He described the scrap situation for his company as "fairly satisfactory."

Scrap yards are tearing into the job of classifying, cutting and shipping the volunteered material, but are handicapped by the labor situation. Some yards have doubled their pay rates, compared to two years ago, despite ceiling sales price limitations, but still are below wage levels in war plants.

In some cities, especially Pittsburgh, the air raid warden organization has been utilized to collect scrap. Latest returns indicate at Pittsburgh that although previous drives produced substantial tonnages, air raid warden efforts at Pittsburgh have been able to account for substantial tonnages. It is believed that this system which has been used in several cities may extend throughout the United States.

The Scrap Institute reported last week consumption in September at 4,556,000 gross tons, a slight decrease from the 4,645,000 tons of August, which is accounted for by the shorter month and the Labor Day Holiday. In September, 1941, consumption was only 4,392,000 gross tons.

For the first nine months this year, the Scrap Institute estimates total consumption at 41,644,000 gross tons compared with 39,858,000 tons in the corresponding period of 1941 and 29,582,000 tons in the same period of 1940.

•

"Mining" Planned at Additional Slag Dumps

• • • **Growth is reported** in the number of slag dump scrap recovery plants in operation or being built.

An installation is nearly completed on the slag piles of Phoenix Iron Co., at Phoenixville, Pa., by the Heckett Corp. of Butler, Pa. Also in the planning or building stages by the same operator are a plant for the Granite City Steel Co. which is expected to be in operation by Jan. 1 and one for the Andrews Steel Co. planned for operation in the early Spring. As reported in the Oct. 29 issue, page 106, Colorado Fuel & Iron Co. will soon mine its big dump.

The Phoenix installation will be

in operation this week and, after the first month or six weeks, is expected to produce from 2000 to 2500 gross tons of recovered and prepared steel scrap for open hearth consumption. This steel scrap is expected to run between 80 and 90 per cent metal.

In addition to scrap for open hearths, the operations will recover steel fines for blast furnace use. These fines are described as metallic particles below ¾ in. in size. Before delivery to the blast furnace they are prepared to an analysis of between 60 and 70 per cent Fe as a regular part of the operation. About 300 to 400 tons of fines will be produced from the Phoenix dump monthly if expectations are filled.

Estimated costs per ton for the reclamation of scrap at the Phoenix Iron installation have not been divulged but it is known that most recovery operations are limited to dumps showing a 12 to 18 per cent metallic content which will produce scrap at a cost of between $6 and $9, depending on variable local factors. Reclamation projects on dumps assaying about 6 per cent metallic content have been known to cost as high as $20 per ton. Recovery from some dumps is said to average about 2500 tons a month and in instances where recovery methods are also applied to currently produced scrap the average yield is reported to be about 2 per cent of the plant's ingot capacity.

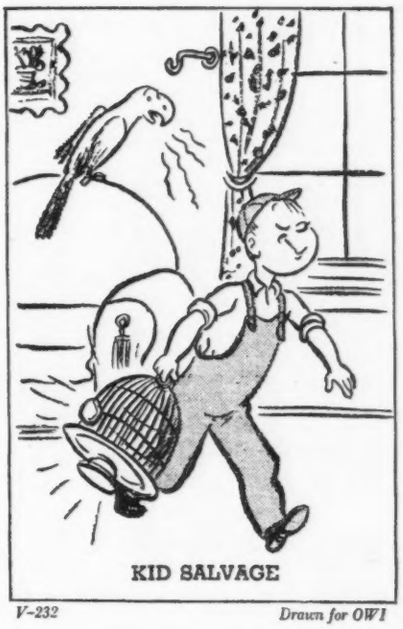
Practically all steel producers are using some method of salvaging scrap from slag. In many cases this is still limited to slag pit recovery via the skull yard but in others the more efficient methods are being applied with good results.

•

PITTSBURGH—Public drives, supplemented by a better return from industrial sources, are responsible for a continued better flow of scrap to this district's steel mills. While some mills are able to build up a small amount of inventory for the winter months, the general situation seems to be that all steel mills are operating at the maximum capacity consistent with the receipts of scrap material. Fear is still expressed here that public enthusiasm for scrap drives may dwindle at a time when material is urgently needed.

•

BIRMINGHAM—The scrap in the piles built up in the immediate Birmingham area during the newspaper-sponsored scrap campaign will be sold to Republic Steel Corp. The company will pay ceiling prices to the committee and the proceeds will go to local civilian defense. Four dealers will prepare the material for open hearth use, and Republic will pay the dealers for that service. The city will furnish necessary trucks and labor for loading.



KID SALVAGE

V-232 *Drawn for OWI*

•

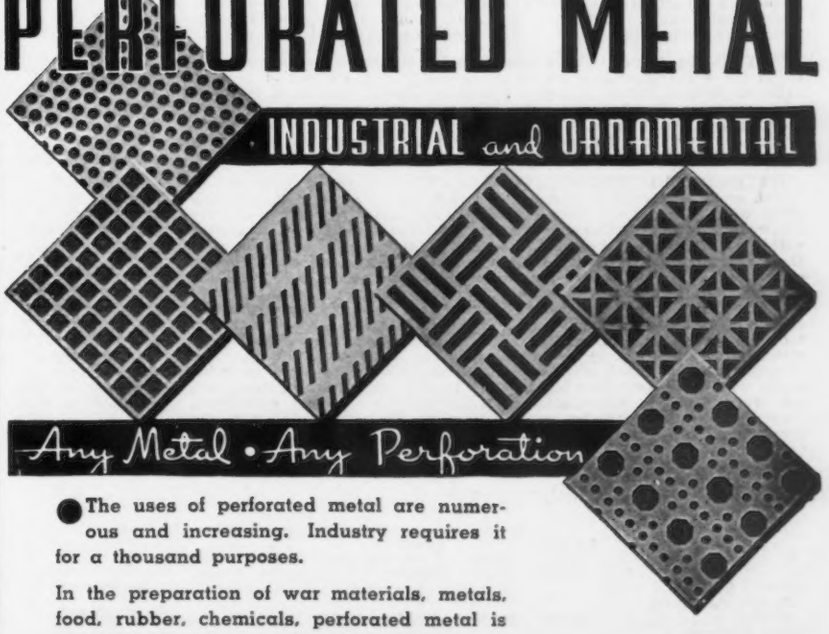
NEW YORK—Scrap from the household drive is being taken by dealers at just about the 350-ton a day rate originally estimated. Early this week, no scrap had yet gone forward direct to Bethlehem Steel, which had arranged to take 500 tons a day at a price reported by reliable scrap circles to be $7.50 a ton, f.o.b. cars. The city was to load the Bethlehem scrap in barges and tow it to Elizabethport, N. J., for rail shipment. Labor shortages have prevented many yards from going on double shifts, but scrap is reported to be flowing freely with eastern Pennsylvania mills well supplied. Mayor LaGuardia told Department of Sanitation workers: "I could step down from here and shut my eyes, and pick five men from your ranks to do a better job than the salvage committee of the WPB and I don't mean maybe" . . . One yard in a middle sized New Jersey city got 1600 galvanized hot water boilers in two weeks. . . . More than 200 salesmen representing steel warehouses in this area began this week a dormant scrap campaign to cover 5000 industrial plants.

•

PHILADELPHIA — Shipments in the area continue to follow the upward trend established about three weeks ago when the results of local scrap drives started to flow from yards. In addition industrial scrap has taken a slight turn for the better and is helping to increase the scrap supply to the point where at least some plants are building a small inventory. A cinder dump exploitation plant is expected to begin operation at Phoenix Iron this week which will produce about 2000 gross tons a month when fully operated.

PERFORATED METAL

INDUSTRIAL and ORNAMENTAL



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In the preparation of war materials, metals, food, rubber, chemicals, perforated metal is required to perform an important role.

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New York Office, 114 Liberty Street

IRON AND STEEL (OTHER THAN RAILROAD) SCRAP

(All Prices Are Per Gross Ton)

	BASIC OPEN HEARTH GRADES (No. 1 Heavy Melting; No. 1 Hydr. Compressed Black Sheets; No. 2 Heavy Melting; Dealers' No. 1 Bundles; Dealers' No. 2 Bundles; No. 1 Busheling)	Unbaled* Machine Shop Turnings	BLAST FURNACE GRADES (Mixed Borings and Turnings; Shovelling Turnings; No. 2 Busheling; Cast Iron Borings)	No. 2 Busheling	ELECTRIC FURNACE, ACID OPEN HEARTH AND FOUNDRY GRADES									
					Low Phos.		Heavy Structural and Plate			Cut Auto. Steel Scrap				
Pittsburgh, Brackenridge, Butler, Monessen, Midland, Johnstown, Sharon, Canton, Steubenville, Warren, Youngstown, Weirton	$20.00	$16.00	$16.00	$17.50	Billet, Bloom, Forge Crops $25.00	Bar Crops, Punchings Plate Scrap and Cast Steel $22.50	3 ft. and Under $21.00	2 ft. and Under $21.50	1 ft. and Under $22.00	3 ft. and Under $20.00	2 ft. and Under $20.50	1 ft. and Under and Auto, Springs, and Crankshafts $21.00	Alloy free Low Phos. and Sulphur Turnings $18.00	Heavy Axle and Forge Turn. First Cut $19.50	Electric Furnace Bundles $21.00
Cleveland, Middletown, Cincinnati, Portsmouth	19.50	15.50	15.50	17.00	24.50	22.00	20.50	21.00	21.50	19.50	20.00	20.50	17.50	19.00	20.50
Chicago, Claymont, Coatesville, Conshohocken, Harrisburg, Phoenixville, Sparrows Pt.	18.75	14.75	14.75	16.25	23.75	21.25	19.75	20.25	20.75	18.75	19.25	19.75	16.75	18.25	19.75
Ashland, Ky.	19.50	15.50	15.50	17.00	24.50	22.00	20.50	21.00	21.50	19.50	20.00	20.50	17.50	19.00	20.50
Buffalo, N. Y.	19.25	15.25	15.25	16.75	24.25	21.75	20.25	20.75	21.25	19.25	19.75	20.25	17.25	18.75	20.25
Bethlehem, Pa.; Kokomo, Ind.	18.25	14.25	14.25	15.75	23.25	20.75	19.25	19.75	20.25	18.25	18.75	19.25	16.25	17.75	19.25
Duluth, Minn.	18.00	14.00	14.00	15.50	23.00	20.50	19.00	19.50	20.00	18.00	18.50	19.00	16.00	17.50	19.00
Detroit, Mich.	17.85	13.85	13.85	15.35	22.85	20.35	18.85	19.35	19.85	17.85	18.35	18.85	15.85	17.35	18.85
Toledo, Ohio		13.85	13.85	15.35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Louis, Mo.	17.50	13.50	13.50	15.00	22.50	20.00	18.50	19.00	19.50	17.50	18.00	18.50	15.50	17.00	18.50
Atlanta, Ga.; Alabama City, Ala.; Birmingham, Los Angeles; Pittsburg, Cal.; San Francisco	17.00	13.00	13.00	14.50	22.00	19.50	18.00	18.50	19.00	17.00	17.50	18.00	15.00	16.50	18.00
Minnequa, Colo.	16.50	12.50	12.50	14.00	21.50	19.00	17.50	18.00	18.50	16.50	17.00	17.50	14.50	16.00	17.50
Seattle, Wash.	14.50	10.50	10.50	12.00	19.50	17.00	15.50	16.00	16.50	14.50	15.00	15.50	12.50	14.00	15.50

*Baled turnings are $4 per gross ton higher. Dealers may charge $2 per ton for crushing other than heavy turnings. An industrial producer may charge $1.

BUNDLES: Tin can bundles are $4 below dealers' No. 2 bundles: No. 3 bundles are $2 less than No. 1 heavy melting.

SWITCHING CHARGES: Deductions for shipping points within basing points (cents per gross ton) are: Pittsburgh, Brackenridge, 55c.; Midland, Johnstown, Sharon, Youngstown, Warren, Weirton, Cleveland, Toledo, Los Angeles, San Francisco, 42c.; Butler, Monessen, Canton, Steubenville, Cincinnati*, Portsmouth, Ashland, Coatesville, Harrisburg, Phoenixville, Bethlehem, Kokomo, Duluth, St. Louis, 28c.; Buffalo, Claymont, 36c.; Conshohocken, 11c.; Atlanta, Birmingham, 32c.; Pittsburg, Cal., 42c.; Middletown, 14c.; Sparrow's Point, 11c.; Chicago, 84c.; Detroit, 53c.; Alabama City, 26c.; Minnequa, 22c.; Seattle, 38c.. *At Cincinnati, for basic open hearth grades, cut auto scrap and auto springs and crankshafts, deduct 80c. per ton.

PITTSBURGH basing point includes switching districts of Bessemer, Homestead, Duquesne, Munhall and McKeesport. Cincinnati basing point includes Newport, Ky., switching district. St. Louis includes switching districts of Granite City, East St. Louis, Madison, Ill. San Francisco includes switching districts of S. San Francisco, Niles and Oakland, Cal.

MAXIMUM prices of inferior grades shall continue to bear same differential below corresponding grades as existed during the period Sept. 1, 1940, to Jan. 31, 1941. Superior grades cannot be sold at a premium without approval of OPA. Special preparation charges in excess of the above prices are banned. Whenever any electric furnace or foundry grades are purchased for open hearth or blast furnace use, prices may not exceed the prices above for the corresponding open hearth grades.

MAXIMUM SHIPPING POINT PRICE—Where shipment is by rail or vessel, or by combination of rail and vessel, the scrap is at its shipping point when placed f.o.b. railroad car or f.a.s. vessel. In such cases, the maximum shipping point prices shall be: (a) For shipping points located within a basing point, the price listed in the table above for the scrap at the basing point in which the shipping point is located, minus the lowest established switching charge for scrap within the basing point and (b) for shipping points located outside the basing point, the price in table above at the most favorable basing point minus the lowest transportation charge by rail or water or combination thereof. Dock charge is 75c. a ton*, but 50c. if moved by deck scow or railroad lighter. Shipping by motor vehicle: The scrap is at its shipping point when loaded. For shipping points located within basing points take price listed in table minus applicable switching charge. If located outside a basing point, the price at the most favorable basing point minus lowest established charge for transporting by common carrier. If no established transportation rate exists, the customary costs are deducted. Published dock charges prevail. If unpublished include 75c.* For exceptions see official order.

AT NEW YORK city or Brooklyn, the maximum shipping point price is $15.33 for No. 1 heavy melting, f.o.b. cars, f.a.s. vessel or loaded on truck. Other grades carry differentials similar to those in table. New Jersey prices must be computed on basis of all-rail. At Boston the maximum is $15.05 for No. 1 f.o.b. cars, f.a.s. vessel or loaded on trucks. Shipments from a New England shipping point to a consumer outside New England carry maximum transportation charge of $6.65 per ton.

UNPREPARED SCRAP: For unprepared scrap, maximum prices shall be $2.50 (and in the case of the material from which No. 1, No. 2, and No. 3 bundles are made $4) less the maximum prices for the corresponding grade or grades of prepared scrap. In no case, however, shall electric furnace and foundry grades be used as the "corresponding grade or grades of prepared scrap." Converter may charge $2.50 per ton on consumer-owned unprepared remote scrap (see order). A preparation-in-transit charge for allocated unprepared scrap is provided.

Maximum price of all scrap in a vehicle is that of the lowest price grade in the shipment. This limitation does not apply to vessel shipments if grades are segregated.

Where scrap is to undergo preparation prior to its arrival at the point of delivery, such scrap is not at its shipping point, as that phrase is defined above, until after preparation has been completed. For special preparation charges, consult official order.

CHEMICAL BORINGS: No. 1 (new, clean, containing not more than 1 per cent oil), $1 less than No. 1 heavy melting; No. 2 (new, clean, containing not more than 1.5 per cent oil), $2 less than No. 1 heavy melting. If loaded in box cars add 75c.

UNPREPARED CAST IRON SCRAP—Except for heavy breakable cast, unprepared scrap is given a price ceiling of $2.50 per ton less than the maximum prices for the corresponding grade of prepared cast iron scrap. Where scrap is to undergo preparation prior to arrival at the point of delivery, such scrap is not considered at shipping point until preparation is completed.

Consumers of cast scrap may pay the shipping point price plus established charge for transporting the scrap to their plants. In the case of deliveries by truck, the cast scrap buyer must obtain from the seller a certification, made out to OPA.

*At Memphis 50c.; Great Lakes ports $1; New England $1.25.

RAILROAD SCRAP

	No. 1 RR Heavy Melting	Scrap Rails	Rails for Rerolling	Scrap Rails: 3 ft. and Under	Scrap Rails: 2 ft. and Under	Scrap Rails: 18 in. and Under
Cleveland, Cincinnati, Ashland, Portsmouth, Middletown	$20.50	$21.50	$23.00	$23.50	$23.75	$24.00
Canton, Pittsburgh, Sharon, Steubenville, Wheeling, Youngstown	21.00	22.00	23.50	24.00	24.25	24.50
Chicago, Philadelphia, Sparrows Pt., Wilmington,	19.75	20.75	22.25	22.75	23.00	23.25
Birmingham, Los Angeles, San Francisco	18.00	19.00	20.50	21.00	21.25	21.50
Buffalo	20.25	21.25	22.75	23.25	23.50	23.75
Detroit	18.85	19.85	21.35	21.85	22.10	22.35
Duluth	19.00	20.00	21.50	22.00	22.25	22.50
Kansas City, Mo.	17.00	18.00	19.50	20.00	20.25	20.50
Kokomo, Ind.	19.25	20.25	21.75	22.25	22.50	22.75
Seattle	15.50	16.50	18.00	18.50	18.75	19.00
St. Louis	18.50	19.50	21.00	21.50	21.75	22.00

CAST IRON SCRAP

	Group A	Group B	Group C
No. 1 cupola cast	$18.00	$19.00	$20.00
No. 1 machinery cast, drop broken, 150 lbs. and under	18.00	19.00	20.00
Clean auto cast	18.00	19.00	20.00
Unstripped motor blocks	17.50	18.50	19.50
Stove Plate	17.00	18.00	19.00
Heavy Breakable Cast	15.50	16.50	17.50
Charging box size cast	17.00	18.00	19.00
Misc. Malleable	20.00	21.00	22.00

Group A includes the states of Montana, Idaho, Wyoming, Nevada, Utah, Arizona and New Mexico.

Group B includes the states of North Dakota, South Dakota, Nebraska, Colorado, Kansas Oklahoma, Texas and Florida.

Group C: States not named in A and B; switch district of Kansas City, Kan., Mo.

. . . Composite Prices

Advances Over Past Week in **Heavy Type**; Declines in *Italics*. (Prices Are F.O.B. Major Basing Points)

Flat Rolled Steel: (Cents Per Lb.)	Nov. 2, 1942	Oct. 27, 1942	Oct. 6, 1942	Nov. 3, 1941
Hot rolled sheets	2.10	2.10	2.10	2.10
Cold rolled sheets	3.05	3.05	3.05	3.05
Galvanized sheets (24 ga.)	3.50	3.50	3.50	3.50
Hot rolled strip	2.10	2.10	2.10	2.10
Cold rolled strip	2.80	2.80	2.80	2.80
Plates	2.10	2.10	2.10	2.10
Plates, wrought iron	3.80	3.80	3.80	3.80
Stain's c.r. strip (No. 302)	28.00	28.00	28.00	28.00
Tin and Terne Plate: (Dollars Per Base Box)				
Tin plate, standard cokes	$5.00	$5.00	$5.00	$5.00
Tin plate, electrolytic	4.50	4.50	4.50	4.50
Special coated mfg. ternes	4.30	4.30	4.30	4.30
Bars and Shapes: (Cents Per Lb.)				
Merchant bars	2.15	2.15	2.15	2.15
Cold finished bars	2.65	2.65	2.65	2.65
Alloy bars	2.70	2.70	2.70	2.70
Structural shapes	2.10	2.10	2.10	2.10
Stainless bars (No. 302)	24.00	24.00	24.00	24.00
Wrought iron bars	4.40	4.40	4.40	4.40
Wire and Wire Products: (Cents Per Lb.)				
Plain wire	2.60	2.60	2.60	2.60
Wire nails	2.55	2.55	2.55	2.55
Rails: (Dollars Per Gross Ton)				
Heavy rails	$40.00	$40.00	$40.00	$40.00
Light rails	40.00	40.00	40.00	40.00
Semi-Finished Steel: (Dollars Per Gross Ton)				
Rerolling billets	$34.00	$34.00	$34.00	$34.00
Sheet bars	34.00	34.00	34.00	34.00
Slabs	34.00	34.00	34.00	34.00
Forging billets	40.00	40.00	40.00	40.00
Alloy blooms, billets, slabs	54.00	54.00	54.00	54.00
Wire Rods and Skelp: (Cents Per Lb.)				
Wire rods	2.00	2.00	2.00	2.00
Skelp (grvd)	1.90	1.90	1.90	1.90

Pig Iron: (Per Gross Ton)	Nov. 2, 1942	Oct. 27, 1942	Oct. 6, 1942	Nov. 3, 1941
No. 2 fdy., Philadelphia	$25.89	$25.89	$25.89	$25.84
No. 2, Valley furnace	24.00	24.00	24.00	24.00
No. 2, Southern Cin'ti	24.68	24.68	24.68	24.06
No. 2, Birmingham	20.38	20.38	20.38	20.38
No. 2, foundry, Chicago†	24.00	24.00	24.00	24.00
Basic, del'd eastern Pa.	25.39	25.39	25.39	25.34
Basic, Valley furnace	23.50	23.50	23.50	23.50
Malleable, Chicago†	24.00	24.00	24.00	24.00
Malleable, Valley	24.00	24.00	24.00	24.00
L. S. charcoal, Chicago	31.34	31.34	31.34	31.34
Ferromanganese‡	135.00	135.00	135.00	120.00

†The switching charge for delivery to foundries in the Chicago district is 60c. per ton.
‡For carlots at seaboard.

Scrap: (Per Gross Ton)				
Heavy melting steel, P'gh.	$20.00	$20.00	$20.00	$20.00
Heavy melt'g steel, Phila.	18.75	18.75	18.75	18.75
Heavy melt'g steel, Ch'go	18.75	18.75	18.75	18.75
No. 1 hy. comp. sheet, Det.	17.85	17.85	17.85	17.85
Low phos. plate, Youngs'n	22.50	22.50	22.50	23.00
No. 1 cast, Pittsburgh	20.00	20.00	20.00	22.00
No. 1 cast, Philadelphia	20.00	20.00	20.00	24.00
No. 1 cast, Ch'go	20.00	20.00	20.00	20.00
Coke, Connellsville: (Per Net Ton at Oven)				
Furnace coke, prompt	$6.00	$6.00	$6.00	$6.125
Foundry coke, prompt	6.875	6.875	6.875	6.875
Non-Ferrous Metals: (Cents per Lb. to Large Buyers)				
Copper, electro., Conn.	12.00	12.00	12.00	12.00
Copper, Lake, New York	12.00	12.00	12.00	12.00
Tin (Straits), New York	52.00	52.00	52.00	52.00
Zinc, East St. Louis	8.25	8.25	8.25	8.25
Lead, St. Louis	6.35	6.35	6.35	5.70
Antimony (Asiatic), N. Y.	16.50	16.50	16.50	16.50

The various basing points for finished and semi-finished steel are listed in the detailed price tables, pages 158 to 166 herein.

. . . Comparison of Prices

	FINISHED STEEL	PIG IRON	SCRAP STEEL
Nov. 2, 1942	2.30467c. a Lb.	$23.61 a Gross Ton	$19.17 a Gross Ton
One week ago	2.30467c. a Lb.	$23.61 a Gross Ton	$19.17 a Gross Ton
One month ago	2.30467c. a Lb.	$23.61 a Gross Ton	$19.17 a Gross Ton
One year ago	2.30467c. a Lb.	$23.61 a Gross Ton	$19.17 a Gross Ton

	FINISHED STEEL HIGH	FINISHED STEEL LOW	PIG IRON HIGH	PIG IRON LOW	SCRAP STEEL HIGH	SCRAP STEEL LOW
1942	2.30467c.,	2.30467c.,	$23.61	$23.61	$19.17	$19.17
1941	2.30467c.,	2.30467c.,	$23.61, Mar. 20	$23.45, Jan. 2	$22.00, Jan. 7	$19.17, Apr. 10
1940	2.30467c., Jan. 2	2.24107c., Apr. 16	23.45, Dec. 23	22.61, Jan. 2	21.83, Dec. 30	16.04, Apr. 9
1939	2.35367c., Jan. 3	2.26689c., May 16	22.61, Sept. 19	20.61, Sept. 12	22.50, Oct. 3	14.08, May 16
1938	2.58414c., Jan. 4	2.27207c., Oct. 18	23.25, June 21	19.61, July 6	15.00, Nov. 22	11.00, June 7
1937	2.58414c., Mar. 9	2.32263c., Jan. 4	23.25, Mar. 9	20.25, Feb. 16	21.92, Mar. 30	12.92, Nov. 10
1936	2.32263c., Dec. 28	2.05200c., Mar. 10	19.74, Nov. 24	18.73, Aug. 11	17.75, Dec. 21	12.67, June 9
1935	2.07642c., Oct. 1	2.06492c., Jan. 8	18.84, Nov. 5	17.83, May 14	13.42, Dec. 10	10.33, Apr. 29
1934	2.15367c., Apr. 24	1.95757c., Jan. 2	17.90, May 1	16.90, Jan. 27	13.00, Mar. 13	9.50, Sept. 25
1933	1.95578c., Oct. 3	1.75836c., May 2	16.90, Dec. 5	13.56, Jan. 3	12.25, Aug. 8	6.75, Jan. 3
1932	1.89196c., July 5	1.83901c., Mar. 1	14.81, Jan. 5	13.56, Dec. 6	8.50, Jan. 12	6.43, July 5
1931	1.99629c., Jan. 13	1.86586c., Dec. 29	15.90, Jan. 6	14.79, Dec. 15	11.33, Jan. 6	8.50, Dec. 29
1930	2.25488c., Jan. 7	1.97319c., Dec. 9	18.21, Jan. 7	15.90, Dec. 16	15.00, Feb. 18	11.25, Dec. 9
1929	2.31773c., May 28	2.26498c., Oct. 29	18.71, May 14	18.21, Dec. 17	17.58, Jan. 29	14.08, Dec. 3

Weighted index based on steel bars, beams, tank plates, wire, rails, black pipe, hot and cold-rolled sheets and strip, representing 78 per cent of the United States output. Index recapitulated in Aug. 28, 1941, issue.

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Southern iron at Cincinnati.

Based on No. 1 heavy melting steel scrap quotations to consumers at Pittsburgh, Philadelphia and Chicago.

Prices of Finished Iron and Steel . . .

Steel prices shown here are f.o.b. basing points, in cents per lb., unless otherwise indicated. On some products either quantity deductions or quantity extras apply. In many cases gage, width, cutting, physical, chemical extras, etc., apply to the base price. Actual realized prices to the mill, therefore, are affected by extras, deductions, and in most cases freight absorbed to meet competition.

Basing Point → / Product ↓	Pittsburgh	Chicago	Gary	Cleveland	Birmingham	Buffalo	Youngstown	Sparrows Point	Granite City	Middletown, Ohio	Gulf Ports, Cars	Pacific Ports, Cars[10]	DELIVERED TO Detroit	New York	Philadelphia
SHEETS															
Hot rolled	2.10¢	2.10¢	2.10¢	2.10¢	2.10¢	2.10¢	2.10¢	2.10¢	2.20¢	2.10¢		2.65¢	2.22¢	2.35¢	2.28¢
Cold rolled[1]	3.05¢	3.05¢	3.05¢	3.05¢		3.05¢	3.05¢		3.15¢	3.05¢		3.70¢	3.17¢	3.41¢	3.39¢
Galvanized (24 ga.)	3.50¢	3.50¢	3.50¢		3.50¢	3.50¢	3.50¢	3.50¢	3.60¢	3.50¢		4.05¢		3.75¢	3.68¢
Enameling (20 ga.)	3.35¢	3.35¢	3.35¢	3.35¢			3.35¢		3.45¢	3.35¢		4.00¢	3.47¢	3.73¢	3.69¢
Long ternes[2]	3.80¢		3.80¢									4.55¢		4.18¢	4.14¢
STRIP															
Hot rolled[3]	2.10¢	2.10¢	2.10¢	2.10¢	2.10¢		2.10¢			2.10¢		2.75¢	2.22¢	2.48¢	
Cold rolled[4]	2.80¢	2.90¢		2.80¢			2.80¢	(Worcester = 3.00¢)					2.92¢	3.18¢	
Cooperage stock	2.20¢	2.20¢			2.20¢		2.20¢							2.58¢	
Commodity C-R	2.95¢			2.95¢			2.95¢	(Worcester = 3.35¢)					3.07¢	3.33¢	
TIN MILL PRODUCTS															
Coke tin plate, base box	$5.00	$5.00	$5.00						$5.10					5.38¢	5.34¢
Electrolytic tin plate, box	$4.50		$4.50												
Black plate, 20 gage[5]	3.05¢	3.05¢	3.05¢						3.15¢			4.05¢[12]			3.39¢
Mfg. ternes, special box	$4.30	$4.30	$4.30						$4.40						
BARS															
Carbon steel	2.15¢	2.15¢	2.15¢	2.15¢	2.15¢	2.15¢		(Duluth = 2.25¢)			2.52¢	2.80¢	2.27¢	2.51¢	2.49¢
Rail steel[6]	2.15¢	2.15¢	2.15¢	2.15¢	2.15¢	2.15¢					2.52¢	2.80¢			
Reinforcing (billet)[7]	2.15¢	2.15¢	2.15¢	2.15¢	2.15¢	2.15¢	2.15¢	2.15¢			2.52¢	2.55¢[13]	2.27¢	2.40¢	
Reinforcing (rail)[7]	2.15¢	2.15¢	2.15¢	2.15¢	2.15¢	2.15¢	2.15¢				2.52¢	2.55¢[13]	2.27¢		2.49¢
Cold finished[8]	2.65¢	2.65¢	2.65¢	2.65¢		2.65¢			(Detroit = 2.70¢)					3.01¢	2.99¢
Alloy, hot rolled	2.70¢	2.70¢				2.70¢	(Bethlehem, Massillon, Canton = 2.70¢)						2.82¢		
Alloy, cold drawn	3.35¢	3.35¢	3.35¢	3.35¢		3.35¢							3.47¢		
								(Coatesville and Claymont = 2.10¢)							
PLATES															
Carbon steel	2.10¢	2.10¢	2.10¢	2.10¢	2.10¢		2.10¢	2.10¢	2.25¢[11]		2.47¢	2.65¢	2.33¢	2.30¢	2.155¢
Floor plates	3.35¢	3.35¢									3.72¢	4.00¢		3.73¢	3.69¢
Alloy	3.50¢	3.50¢			(Coatesville =	.50¢)					3.97¢	4.15¢		3.71¢	3.60¢
SHAPES															
Structural	2.10¢	2.10¢	2.10¢		2.10¢	2.10¢	(Bethlehem = 2.10¢)				2.47¢	2.75¢		2.28¢	2.22¢
SPRING STEEL, C-R															
0.26 to 0.50 Carbon	2.80¢			2.80¢			(Worcester = 3.00¢)								
0.51 to 0.75 Carbon	4.30¢			4.30¢			(Worcester = 4.50¢)								
0.76 to 1.00 Carbon	6.15¢			6.15¢			(Worcester = 6.35¢)								
1.01 to 1.25 Carbon	8.35¢			8.35¢			(Worcester = 8.55¢)								
WIRE[9]															
Bright[14]	2.60¢	2.60¢		2.60¢	2.60¢		(Worcester = 2.70¢)					3.10¢			2.94¢
Galvanized	add proper size extra and galvanized extra to bright wire base, above.														
Spring (High Carbon)	3.20¢	3.20¢		3.20¢			(Worcester = 3.30¢)					3.70¢			3.54¢
PILING															
Steel sheet	2.40¢	2.40¢				2.40¢						2.95¢			2.74¢

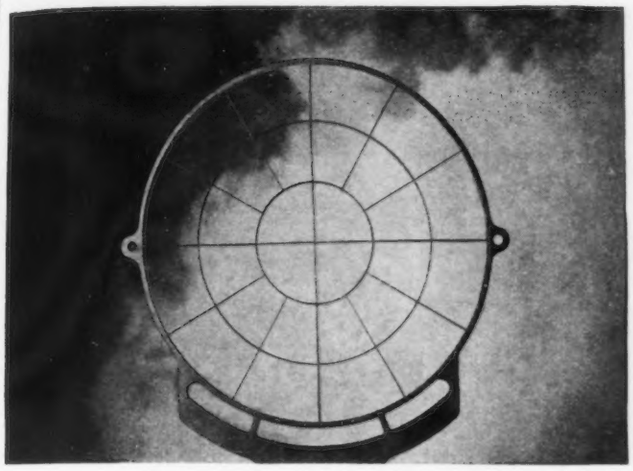
[1] Mill run sheets are 10c. per 100 lb. less than base; and primes only, 25c. above base. [2] Unassorted 8-lb. coating. [3] Widths up to 12 in. [4] Carbon 0.25 per cent and less. [5] Applies to certain width and length limitations. [6] For merchant trade. [7] Prices for straight length material only, from a producer to a consumer. Functional discount of 25c. per 100 lb. to fabricators. [8] Also shafting. For quantities of 20,000 to 39,999 lb. [9] Carload lot to manufacturing trade. [10] These prices do not apply if the customary means of transportation (rail and water) are not used. [11] Ship plates only. [12] Boxed. [13] Portland and Seattle price, San Francisco price is 2.50c. [14] This bright wire base price to be used in figuring annealed and bright finish wires, commercial spring wire and galvanized wire.

GOVERNMENT CEILINGS—Price Schedule No. 6 issued April 16, 1941, governs steel mill prices; Price Schedule No. 49 governs warehouse prices, which are on another page of this issue.

EXCEPTIONS TO PRICE SCHEDULE NO. 6—On hot rolled carbon bars. Phoenix Iron Co. may quote 2.35c. at established basing points; Calumet Steel division of Borg Warner may quote 2.35c., Chicago, on bars from its 8-in. mill; Joslyn Mfg. Co. may quote 2.35c., Chicago base. On rail steel bars Sweets Steel Co. may quote 2.33c., f.o.b. mill. On hot rolled sheets, Andrews Steel Co. may quote for shipment to Detroit area on Middletown base. On galvanized sheets, Andrews Steel may quote 3.75c. at established basing points. On hot rolled strip, Joslyn Mfg. Co. may quote 2.30c., Chicago base. On plates, Granite City Steel Co. may quote 2.35c., f.o.b. mill, and Central Iron & Steel Co. may quote 2.20c., f.o.b. basing points. On shapes, Phoenix Iron Co. may quote 2.30c. established basing points and 2.50c. Phoenixville for export.

On rail steel merchant bars, Eckels-Nye Corp. may charge 2.40c. On tubing, South Chester Tube Co. may price Gulf or Pacific Coast all-rail shipments and shipments west of Harrisburg on basis of f.o.b. Chester. On lend-lease sales to eastern seaboard, Sheffield Steel Co. and Colorado Fuel & Iron Corp. may sell f.o.b. mill. SEMIFINISHED STEEL—Follansbee Steel Corp. may sell forging billets at $49.50 f.o.b. Toronto; Continental Steel Corp. may sell Acme Steel Co. at $34 for rerolling billets plus extras and freight; Ford Motor Co. may sell rerolling billets at $34 f.o.b. Dearborn; Andrews Steel Co. may sell forging billets at $50 at established basing points and slabs at $41; Empire Sheet and Tin Plate may sell slabs at $41 at established basing points and sheet bars at $39 f.o.b. mill; on lend-lease sales Northwestern Steel & Wire Co. may charge $41 per gross ton f.o.b. mill for rerolling billets; on lend-lease sales Wheeling Steel Corp. may charge $36 per ton for small billets, f.o.b. Portsmouth and $37 per ton for sheet bars f.o.b. Portsmouth; Laclede Steel Co. on semifinished sales for lend-lease shipped to eastern seaboard may use Chicago basing point prices f.o.b. Alton and Madison, Ill. ALLOY STEEL BARS—Texas Steel Co. may use Chicago base f.o.b. Worth Worth.

DIE CAST GUN SIGHTS FOR THE FIGHTING FRONTS



The cross ribs are under .050″ in section thickness.

All metals and methods of fabrication will eventually find their proper places in the war effort. To the extent that special high grade zinc is available, and with high speed die casting equipment to be utilized for those applications where it can be of maximum value, a wider use of ZINC Alloy Die Castings probably lies ahead.

Our British Allies have, for example, been employing die castings of ZINC Alloy for a variety of war items which are not so produced in this country. Consider the Canadian-made anti-aircraft gun sight shown above. Although the diameter of this gun sight is 11¼″, it has been possible, through ingenious die design, to chase the metal for the cross ribs in section thicknesses which range only .035″ to .050″.

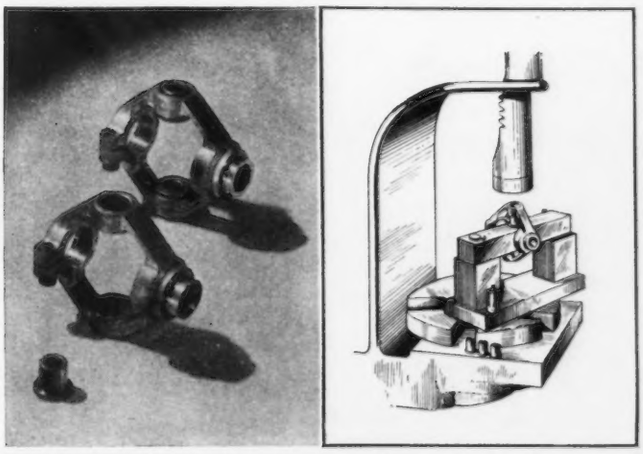
The requirements of dimensional accuracy, production economy and strength for this gun sight all come well within the scope of ZINC Alloy Die Castings.

A CLEVER FIXTURE FOR BUSHING INSERTION

A worker in the assembly department of a Company which uses large quantities of ZINC Alloy Die Castings has developed a clever fixture for bushing insertion. This fixture guards against possible distortion in a thin section of metal, by so supporting the die casting that the stress of insertion is taken by the boss around the bushing hole.

The part in the illustration is a differential gear carrier in the form of a spider. The casting is slipped over a pivoted bar which is swung back against a stop. This bar supports the bushing, flange end down, and holds it in place for the arbor press ram.

Because the bushing, when seated, protrudes above the surface of the casting, a hollow punch is used between the press ram and the casting at the end of the insertion stroke. This punch is placed over a pin next to the supporting block on the fixture when not in use (see sketch).



The fixture guards against distortion and speeds up production of a war item.

THE New Jersey zinc° ALLOY POT

FOR VICTORY BUY UNITED STATES WAR SAVINGS BONDS STAMPS

A publication issued for many years by The New Jersey Zinc Company to report on trends and accomplishments in the field of die castings. Title Reg. U. S. Pat. Off.

IRON AGE EDITION **No. 3**

THE ECONOMY OF ZINC ALLOY DIE CASTINGS

The pulley hub, the face and the blades of the 9¼″ ZINC Alloy Die Cast rotor shown below are all integrally cast. By what other means could this blower rotor have been produced—in one piece—without costly assembling and machining?

There are many physical reasons behind the adoption of ZINC Alloy Die Castings but, basically, the deciding factor is economy—the material and manufacturing method which will do the job best at lowest cost.

For further examples of this economy, ask us—on your company letterhead—for copies of five booklets illustrating ZINC Alloy Die Casting applications in five major peace-time consuming fields.

Not shown is a metal saver with strengthening ribs—between the hub and the largest diameter pulley.

THE NEW JERSEY ZINC COMPANY 160 FRONT ST., NEW YORK CITY

HORSE HEAD SPECIAL (99.99 + % Uniform Quality) ZINC

SEMI-FINISHED STEEL

For exceptions, see preceding page

Billets, Blooms and Slabs

Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Buffalo, Birmingham, Sparrows Point (rerolling only). Prices delivered Detroit are $2.25 higher; f.o.b. Duluth, billets only, $2 higher.

	Per Gross Ton
Rerolling	$34.00
Forging quality	40.00

Shell Steel

	Per Gross Ton
3 in. to 12 in.	$52.00
12 in. to 18 in.	54.00
18 in. and over	56.00

Basic open hearth shell steel, f.o.b. Pittsburgh, Chicago, Buffalo, Gary, Cleveland, Youngstown and Birmingham.

Prices delivered Detroit are $2.25 higher.

Note: The above base prices apply on lots of 1000 tons of a size and section to which are to be added extras for chemical requirements, cutting, or quantity.

Sheet Bars

Pittsburgh, Chicago, Cleveland, Youngstown, Buffalo, Canton, Sparrows Point, Md.

	Per Gross Ton
Open hearth or bessemer	$34.00

Skelp

Pittsburgh, Chicago, Youngstown, Coatesville, Pa., Sparrows Point, Md.

	Per Lb.
Grooved, universal and sheared	1.90c.

Wire Rods

(No. 5 to 9/32 in.)

	Per Lb.
Pittsburgh, Chicago, Cleveland	2.00c.
Worcester, Mass.	2.10c.
Birmingham	2.00c.
San Francisco	2.50c.
Galveston	2.25c.

9/32 in. to 47/64 in., 0.15c. a lb. higher. Quantity extras apply.

Alloy Steel Blooms, Billets and Slabs

Pittsburgh, Chicago, Canton, Massillon, Buffalo, or Bethlehem, per gross ton $54.00

TOOL STEEL

(F.o.b. Pittsburgh, Bethlehem, Syracuse)

	Base per Lb.
High speed	67c.
Straight molybdenum	54c.
Tungsten-molybdenum	57½c.
High-carbon-chromium	43c.
Oil hardening	24c.
Special carbon	22c.
Extra carbon	18c.
Regular carbon	14c.

Warehouse prices east of Mississippi are 2c. a lb. higher; west of Mississippi, 3c. higher.

CORROSION AND HEAT-RESISTING STEEL

(Per lb. base price, f.o.b. Pittsburgh)

Chromium-Nickel Alloys

	No. 304	No. 302
Forging billets	21.25c.	20.40c.
Bars	35.00c.	24.00c.
Plates	29.00c.	27.00c.
Structural shapes	25.00c.	24.00c.
Sheets	36.00c.	34.0[illegible]c.
Hot rolled strip	23.50c.	21.50c.
Cold rolled strip	30.00c.	28.00c.
Drawn wire	25.00c.	24.00c.

Straight-Chromium Alloys

	No. 410	No. 430	No. 442	No. 446
F.Billets	15.725c.	16.15c.	19.125c.	23.375c.
Bars	18.50c.	19.00c.	22.50c.	27.50c.
Plates	21.50c.	22.00c.	25.50c.	30.50c.
Sheets	26.50c.	29.00c.	32.50c.	36.50c.
Hotstrip	17.00c.	17.50c.	24.00c.	35.00c.
Cold st.	22.00c.	22.50c.	32.00c.	52.00c.

Chromium-Nickel Clad Steel (20%)

	No. 304
Plates	18.00c.*
Sheets	19.00c.

*Includes annealing and pickling.

PIG IRON

All prices set in bold face type are maxima established by OPA on June 24, 1941. Other domestic prices (in italics) are delivered quotations per gross ton computed on the basis of the official maxima.

	No. 2 Foundry	Basic	Bessemer	Malleable	Low Phosphorus	Charcoal
Boston††	*$25.53*	*$25.03*	*$26.53*	*$26.03*	.....	.....
Brooklyn	*27.65*	.....	.....	*28.15*	.....	.....
Jersey City	*26.62*	*26.12*	*27.62*	*27.12*	.....	.....
Philadelphia	*25.89*	*25.39*	*26.89*	*26.39*	.....	.....
Bethlehem, Pa.	$25.00	$24.50	$26.00	$25.50	.....	.....
Everett, Mass.††	25.00	24.50	26.00	25.50	.....	.....
Swedeland, Pa.	25.00	24.50	26.00	25.50	.....	.....
Steelton, Pa.	.....	24.50	.....	.....	$29.50	.....
Birdsboro, Pa.	25.00	24.50	26.00	25.50	29.50	.....
Sparrows Point, Md.	25.00	24.50	.....	.....	.....	.....
Erie, Pa.	24.00	23.50	25.00	24.50	.....	.....
Neville Island, Pa.	24.00	23.50	24.50	24.00	.....	.....
Sharpsville, Pa.*	24.00	23.50	24.50	24.00	.....	.....
Buffalo	24.00	23.00	25.00	24.50	29.50	.....
Cincinnati	*24.68*	*24.68*	.....	*25.18*	.....	.....
Canton, Ohio	*25.47*	*24.97*	*25.97*	*25.47*	.....	.....
Mansfield, Ohio	*26.06*	*25.56*	*26.56*	*26.06*	.....	.....
St. Louis	*24.50*	*24.00*	.....	.....	.....	.....
Chicago	24.00	23.50	24.50	24.00	.....	..... *$31.34*
Granite City, Ill.	24.00	23.50	24.50	24.00	.....	.....
Cleveland	24.00	23.50	24.50	24.00	.....	.....
Hamilton, Ohio	24.00	23.50	.....	24.00	.....	.....
Toledo	24.00	23.50	24.50	24.00	.....	.....
Youngstown*	24.00	23.50	24.50	24.00	.....	.....
Detroit	24.00	23.50	24.50	24.00	.....	.....
Lake Superior fc.	.....	.....	.....	.....	.....	$28.00
Lyles, Tenn. fc.†	.....	.....	.....	.....	.....	33.00
St. Paul	*26.76*	.....	*27.26*	*26.76*	.....	.....
Duluth	24.50	.....	25.00	24.50	.....	.....
Birmingham	20.38	19.00	25.00	.....	.....	.....
Los Angeles	*27.25*	.....	.....	.....	.....	.....
San Francisco	*27.25*	.....	.....	.....	.....	.....
Seattle	*27.25*	.....	.....	.....	.....	.....
Provo, Utah	22.00	.....	.....	.....	.....	.....
Montreal	*27.50*	*27.50*	.....	*28.00*	.....	.....
Toronto	*25.50*	*25.50*	.....	*26.00*	.....	.....

GRAY FORGE IRON: Valley or Pittsburgh furnace $23.50

*Pittsburgh Coke & Iron Co. (Sharpsville, Pa. furnace only) and the Struthers Iron and Steel Co., Struthers, Ohio, may charge 50c. a ton in excess of basing point prices for No. 2 foundry, basic, bessemer and malleable.

**Pittsburgh Ferromanganese Co. (Chester furnace only) may charge $2.25 a ton over maximum basing point prices.

†Price shown is for low-phosphorous iron; high-phosphorous sells for $28.50 at the furnace.

††Eastern Gas & Fuel Associates, Boston, is permitted to sell pig iron produced by its selling company, Mystic Iron Works, Everett, Mass., at $1 per gross ton above maximum prices.

Basing point prices are subject to switching charges; silicon differentials (not to exceed 50c. a ton for each 0.25 per cent silicon content in excess of base grade which is 1.75 per cent to 2.25 per cent); phosphorous differentials, a reduction of 38c. per ton for phosphorous content of 0.70 per cent and over; manganese differentials, a charge not to exceed 50c. per ton for each 0.50 per cent manganese content in excess of 1.00 per cent.

NATIONAL EMERGENCY STEELS (Hot Rolled)

(Partial List)

Extras for Alloy Content

Designation	CHEMICAL COMPOSITION LIMITS, PER CENT									Basic Open-Hearth		Electric Furnace	
	Carbon	Manganese	Phosphorus Max.	Sulphur Max.	Silicon	Nickel	Chromium	Molybdenum	Vanadium	Bars & Bar-Strip	Billets, Blooms, & Slabs	Bars & Bar-Strip	Billets, Blooms, & Slabs
NE 1330	.28/.33	1.60/1.90	.040	.040	.20/.35	.....	.....	.....	.....	.10c	$ 2.00	.....	.....
NE 8020	.18/.23	1.00/1.30	.040	.040	.20/.35	.....	.....	.10/.20	.....	.45	9.00	.95c	$19.00
NE 8339	.37/.42	1.30/1.60	.040	.040	.20/.35	.....	.....	.20/.30	.....	.75	15.00	1.25	25.00
NE 8442*	.40/.45	1.30/1.60	.040	.040	.20/.35	.....	.....	.30/.40	.....	.90	18.00	1.40	28.00
NE 8613	.12/.17	.70/.90	.040	.040	.20/.35	.40/.60	.40/.60	.15/.25	.....	.75	15.00	1.25	25.00
NE 8715	.13/.18	.70/.90	.040	.040	.20/.35	.40/.60	.40/.60	.20/.30	.....	.80	16.00	1.30	26.00
NE 8949*	.45/.50	1.00/1.30	.040	.040	.20/.35	.40/.60	.40/.60	.30/.40	.....	1.20	24.00	1.70	34.00
NE 9255	.50/.60	.70/.95	.040	.040	1.80/2.20	.....	.....	.....	.....	.40	8.00	.....	.....
NE 9415	.13/.18	.80/1.10	.040	.040	.40/.60	.20/.40	.20/.40	.08/.15	.....	.80	16.00	1.30	26.00
NE 9442	.40/.45	1.00/1.30	.040	.040	.40/.60	.20/.40	.20/.40	.08/.15	.....	.85	17.00	1.35	27.00
NE 9450	.48/.53	1.20/1.50	.040	.040	.40/.60	.20/.40	.20/.40	.08/.15	.....	.85	17.00	1.35	27.00
NE 9537*	.35/.40	1.20/1.50	.040	.040	.40/.60	.40/.60	.40/.60	.15/.25	.....	1.20	24.00	1.70	34.00
NE 9550*	.48/.53	1.20/1.50	.040	.040	.40/.60	.40/.60	.40/.60	.15/.25	.....	1.20	24.00	1.70	34.00
NE 9630	.28/.33	1.20/1.50	.040	.040	.40/.60	.....	.40/.60	.....	.....	.80	16.00	1.30	26.00
NE 9650	.48/.53	1.30/1.60	.040	.040	.40/.60	.....	.40/.60	.....	.....	.85	17.00	1.35	27.00

* Recommended for large sections only.

Note: The extras shown above are in addition to a base price of 2.70c. per 100 lb., on finished products and $54. per gross ton on semi-finished steel major basing points and are in cents per 100 lb. and dollars per gross ton in semi-finished.

Safe FOR MEN AND METAL

...PEERLESS POWER SAWS

While sawing test samples for the Dow Chemical Company, a 14" Peerless High Duty (like the machine shown in the illustration above) cut 10½ sq. in. per minute. The bar of Dow metal was 11¾ inches in diameter — 108.43 sq. in. per cut. A two-tooth blade was used.

Haste with waste never was sound shop practice! And, today speeds that sacrifice SAFETY* cannot be tolerated.

Fast cutting with maximum safety for men and metal has won broad acceptance for Peerless Power Saws in our war industries. Peerless cool-running, straight-cutting blades remove as little as 1/16" of the metal. These fine cuttings are easily salvaged from the chip tray.

Peerless Power Saws also release their operators for other productive work while the cutting progresses smoothly and quietly. The patented, Peerless Four-Sided Saw-Frame, with Backing-Plate Blade-Support guards the life of the blade. Should the blade grow dull and break, under strain caused by neglect, the Peerless stops *automatically* before injury can be caused to MEN or METAL . . . Peerless effectively combines SPEED with SAFETY! The coupon entitles you to a set of the latest literature.

PEERLESS MACHINE COMPANY • RACINE, WISCONSIN

Peerless
METAL SAWING MACHINES

PEERLESS MACHINE COMPANY, Dept. IA-1142, Racine, Wisconsin

*Mail information on Peerless Saws and the features which are helping war industries reduce the rate of man-days lost — 480,000,000 days lost in 1941.

- ☐ Mail catalog on Hydraulic type Saw for High Production Cutting
- ☐ Mail catalog covering Vertical type used for Die Block Work
- ☐ Mail catalog on Mechanical type Saw for production cutting
- ☐ Mail catalog on general utility and maintenance Saws

Company.....

Individual.....

Street.....

City.....State.....

FAST, ACCURATE CUTTING DEMANDS POSITIVE BLADE CONTROL

ELECTRICAL SHEETS

(Base, f.o.b. Pittsburgh)

	Per Lb.
Field grade	3.20c.
Armature	3.55c.
Electrical	4.05c.
Motor	4.95c.
Dynamo	5.65c.
Transformer 72	6.15c.
Transformer 65	7.15c.
Transformer 58	7.65c.
Transformer 52	8.45c.

F.o.b. Granite City, add 10c. per 100 lb. on field grade to and including dynamo. Pacific ports add 75c. per 100 lb. on all grades.

WIRE PRODUCTS

To the trade, f.o.b. Pittsburgh, Chicago, Cleveland, Birmingham

	Base per Keg
Standard wire nails	$2.55
Coated nails	2.55
Cutnails, carloads	3.85
	Base per 100 Lb.
Annealed fence wire	$3.05
Annealed galvanized fence wire	3.40
	Base Column
Woven wire fence*	67
Fence posts (carloads)	69
Single loop bale ties	59
Galvanized barbed wire†	70
Twisted barbless wire	70

*15½ gage and heavier. †On 80-rod spools in carload quantities.

ROOFING TERNE PLATE

(F.o.b. Pittsburgh, per Package of 112 Sheets)

	20x14 in.	20x28 in.
8-lb. coating I.C.	$6.00	$12.00
15-lb. coating I.C.	7.00	14.00
20-lb. coating I.C.	7.50	15.00
25-lb. coating I.C.	8.00	16.00
30-lb. coating I.C.	8.63	17.25
40-lb. coating I.C.	9.75	19.50

BOLTS, NUTS, RIVETS, SET SCREWS

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)

Per Cent off List

Machine and Carriage Bolts:

½ in. & smaller x 6 in. & shorter	65½
9/16 & ⅝ in. x 6 in. & shorter	63½
¾ to 1 in. x 6 in. & shorter	61
1⅛ in. and larger, all length	59
All diameters over 6 in. long	59
Lag, all sizes	62
Plow bolts	65

Nuts, Cold Punched or Hot Pressed:

(Hexagon or Square)

½ in. and smaller	62
9/16 to 1 in. inclusive	59
1⅛ to 1½ in. inclusive	57
1⅝ in. and larger	56

On above bolts and nuts, excepting plow bolts, additional allowance of 10 per cent for full container quantities. There is an additional 5 per cent allowance for carload shipments.

Semi-Fin. Hexagon Nuts	U.S.S.	S.A.E.
7/16 in. and smaller	..	64
½ in. and smaller	62	
½ in. through 1 in.	..	60
9/16 to 1 in.	59	..
1⅛ in. through 1½ in.	57	58
1⅝ in. and larger	56	..

In full container lots, 10 per cent additional discount.

Stove bolts, packages, nuts loose 71 and 10

Stove bolts in packages, with nuts attached 71

Stove bolts in bulk 80

On stove bolts freight allowed up to 65c. per 100 lb. based on Cleveland, Chicago, New York on lots of 200 lb. or over.

Large Rivets *(½ in. and larger)*

Base per 100 lb.

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham $3.75

Small Rivets *(7/16 in. and smaller)*

Per Cent Off List

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham 65 and 5

Cap and Set Screws *Per Cent Off List*

Upset full fin. hexagon head cap screws, coarse or fine thread, up to and incl. 1 in. x 6 in.	64
Upset set screws, cup and oval points	71
Milled studs	46
Flat head cap screws, listed sizes	36
Fillister head cap, listed sizes	51

Freight allowed up to 65c. per 100 lb. based on Cleveland, Chicago or New York on lots of 200 lb. or over.

PIPE AND TUBING

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

(F.o.b. Pittsburgh only on wrought pipe)

Base Price—$200 per Net Ton

Steel (Butt Weld)

	Black	Galv.
½ in.	63½	51
¾ in.	66½	55
1 to 3 in.	68½	57½

Wrought Iron (Butt Weld)

½ in.	24	3½
¾ in.	30	10
1 and 1¼ in.	34	16
1½ in.	38	18½
2 in.	37½	18

Steel (Lap Weld)

2 in.	61	49½
2½ and 3 in.	64	52½
3½ to 6 in.	66	54½

Wrought Iron (Lap Weld)

2 in.	30½	12
2½ to 3½ in.	31½	14½
4 in.	33½	18
4½ to 8 in.	32½	17

Steel (Butt, extra strong, plain ends)

	Black	Galv.
½ in.	61½	50½
¾ in.	65½	54½
1 to 3 in.	67	57

Wrought Iron (Same as Above)

½ in.	25	6
¾ in.	31	12
1 to 2 in.	38	19½

Steel (Lap, extra strong, plain ends)

2 in.	59	48½
2½ and 3 in.	63	52½
3½ to 6 in.	66½	56

Wrought Iron (Same as Above)

2 in.	33½	15½
2½ to 4 in.	39	22½
4½ to 6 in.	37½	21

On butt weld and lap weld steel pipe jobbers are granted a discount of 5%. On less-than-carload shipments prices are determined by adding 25 and 30% and the carload freight rate to the base card.

F.o.b. Gary prices are two points lower discount or $4 a ton higher than Pittsburgh or Lorain on lap weld and one point lower discount, or $2 a ton higher on all butt weld.

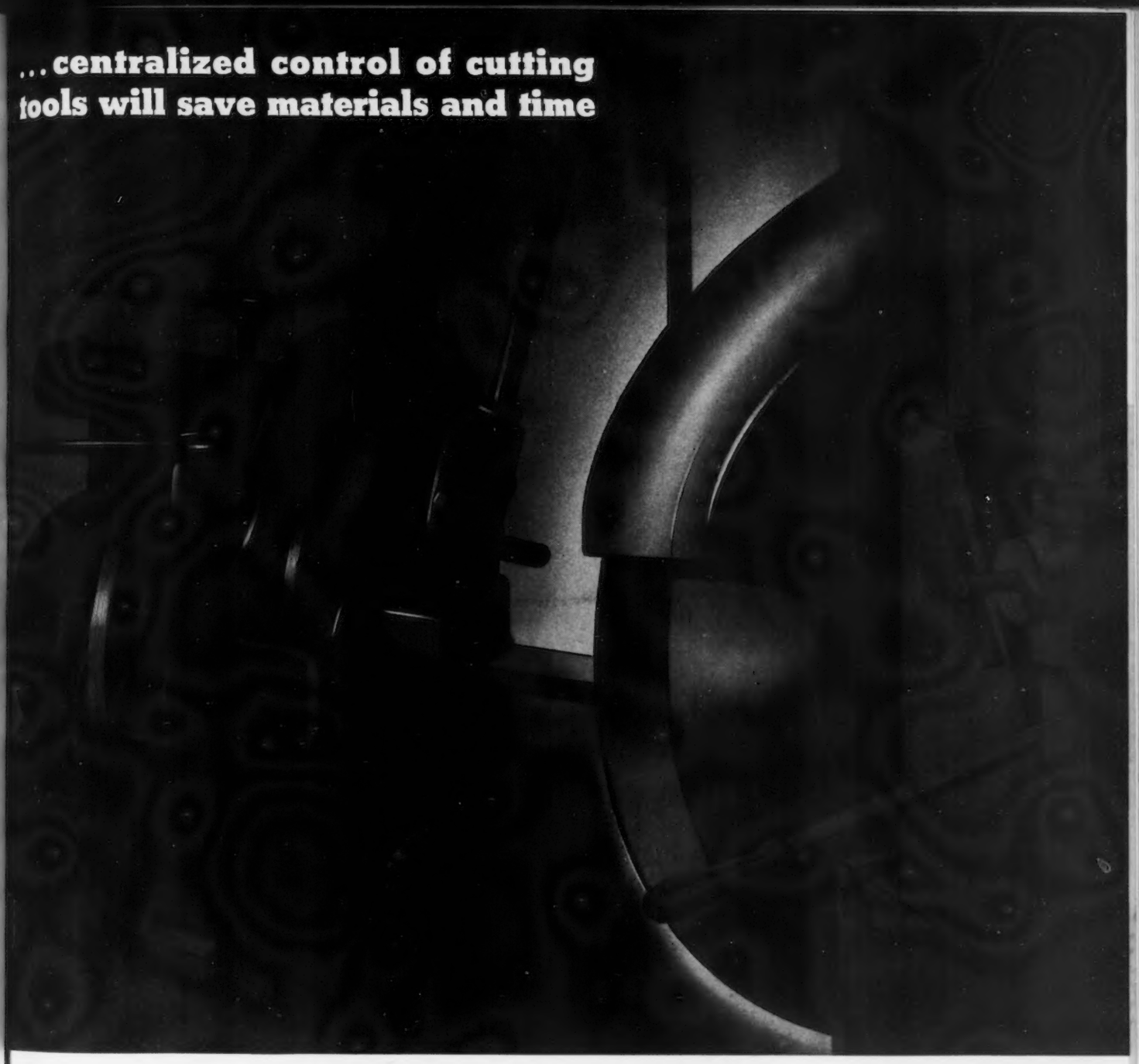
WAREHOUSE PRICES

(Delivered Metropolitan areas, per 100 lb. These prices do not necessarily apply for dislocated tonnage shipments when the f.o.b. City prices are used in conformance with OPA Schedule 49)

CITIES	SHEETS			STRIP		Plates (¼ in. and heavier)	Structural Shapes	BARS		ALLOY BARS			
	Hot Rolled (10 ga.)	Cold Rolled	Galv. (24 ga.)	Hot Rolled	Cold Rolled			Hot Rolled	Cold Finished	Hot Rolled 2300	Hot Rolled 3100	Cold Drawn 2300	Cold Drawn 3100
Pittsburgh	$3.35	....	$4.65	$3.60	$3.20	$3.40	$3.40	$3.35	$3.65	$7.45	$5.75	$8.40	$6.75
Chicago	3.25	4.10	4.85[1]	3.60	3.50	3.55	3.55	3.50	3.75	7.35	5.65	8.40	6.75
Cleveland	3.35	4.05	4.62	3.50	3.20	3.40	3.58	3.25	3.75	7.55	5.85	8.40	6.75
Philadelphia	3.55	4.05[5]	4.65	3.51	3.31	3.55	3.55	3.85	4.06	7.31	5.86	8.56	7.18
New York	3.58	4.60[2]	5.00	3.96[6]	3.51	3.76	3.75	3.84	4.09	7.60	5.90	8.84	7.19
Detroit	3.43	4.30	4.84[1]	3.68*	3.40	3.60	3.65	3.43	3.80	7.67	5.97	8.70	7.05
Buffalo	3.25	4.30[1]	4.75[4]	3.82	3.52	3.62	3.40	3.35	3.75	7.35	5.65	8.40	6.75
Boston	3.71	4.68	5.11	4.06	3.46	3.85	3.85	3.98	4.13	7.75	6.05	8.88	7.23
Birmingham	3.45[3]	....	4.75[1]	3.70[3]	....	3.55[3]	3.55[3]	3.50[3]	4.48	....	....	....	....
St. Louis	3.39	4.24[2]	4.99[1]	3.74	3.61	3.69	3.69	3.64	4.02	7.72	6.02	8.77	7.12
St. Paul	3.50	4.35	5.00	3.85	3.63	3.80	3.80	3.75	4.34	7.45	6.00	8.84	7.44
Milwaukee	3.38	4.23[2]	4.98[1]	3.73	3.54	3.68	3.68	3.63	3.88	7.58	5.88	8.63	6.98
Baltimore	3.50	....	5.05	4.00	....	3.70	3.70	3.85	4.04	....	....	....	....
Cincinnati	3.42	4.37[2]	4.42[1]	3.67	3.45	3.65	3.68	3.60	4.00	7.69	5.99	8.50	7.10
Norfolk	3.85	....	5.40	4.10	....	4.05	4.05	4.00	4.15	....	....	....	....
Washington	3.60	....	....	4.10	....	3.80	3.80	3.95	4.10	....	....	....	....
Indianapolis	3.45	4.25	5.01[1]	3.75	3.28	3.70	3.70	3.60	3.97	7.67	5.97	8.72	7.07
Omaha	3.85	....	5.52[1]	4.20	....	4.15	4.15	4.10	4.42	....	....	....	....
Memphis	3.85	....	5.25	4.10	....	3.95	3.95	3.90	4.31	....	....	....	....
New Orleans	4.05	....	....	4.30	....	3.90	3.90	4.10	4.60	....	....	....	....
Houston	4.00	....	....	4.30	....	4.05	4.05	3.75	....	....	....	....	....
Los Angeles †	4.95	7.15	5.95	4.90	....	4.90	4.60	4.35	6.60	9.55	8.55	10.55	9.55
San Francisco†	4.55	7.05	6.10	4.50	....	4.65	4.35	3.95	6.80	9.80	8.80	10.80	9.80
Seattle†	4.65[7]	....	5.70[7]	4.25	....	4.75	4.45	4.20	5.75	....	8.00	....	....

BASE QUANTITIES: Hot rolled sheets, cold rolled sheets, hot rolled strip, plates, shapes and hot rolled bars, 400 to 1999 lb., galvanized sheets, 150 to 1499 lb.; cold rolled strip, extras apply on all quantities; cold finished bars, 1500 lb. and over; SAE bars, 1000 lb. and over. Exceptions: [1] 500 to 1499 lb. [2] 400 to 1499 lb. [3] 400 to 3999 lb. [4] 450 to 1499 lb. [5] 1000 to 1999 lb. [6] 0 to 1999 lb. [7] 300 to 10,000 lb. At Philadelphia galvanized sheets, 25 or more bundles; Boston, cold rolled and galvanized sheets, 450 to 3749 lb.; San Francisco, hot rolled sheets, 400 to 39,999 lb., galvanized and cold rolled sheets, 750 to 4999 lb., cold fin. bars, 0-299 lb.; hot rolled alloy bars, 0-4999 lb.; Seattle, cold finished bars, 1000 lb. and over, hot rolled alloy bars, 0-1999 lb.; Memphis, hot rolled sheets, 400 to 1999 lb., galvanized sheets, 150 and over; St. Paul, galvanized and cold rolled sheets, any quantity, hot rolled bars, plates, shapes, hot rolled sheets, 400 to 14,999 lb.; Los Angeles, hot rolled sheets, bars, plates, cold rolled sheets, 300 to 1999 lb.; galvanized sheets, 1 to 6 bundles; cold finished bars, 1 to 99 lb.; SAE bars, 100 lb. Extras for size, quality, etc., apply on above quotations. * 12 gage and heavier, $3.43. †Los Angeles, San Francisco and Seattle prices reflect special provisions of amendment No. 2 to OPA Price Schedule No. 49.

...centralized control of cutting tools will save materials and time



Information supplied by "The Iron Age"

The unnecessarily high casualty rate of single point cutting tools is a phase of the battle of production which deserves more attention than it seems to be getting.

One remedy that offers great possibilities is the establishment of a system of centralized tool control.

Such a system would have the obvious advantage of coordinating three most important factors—design, operation and maintenance of cutting tools.

To be effective, design should be based on a knowledge of actual operating requirements, including material being cut and the machine on which the tool is to be used.

Speeds and feeds should be selected from the point of view of economical tool life instead of rate setting. Then operators should be prevented from running tools to destruction, thereby eliminating the necessity for trying to salvage tools that are worn beyond all semblance of their original form.

All worn tools should be redressed in the tool crib by machine according to the drawing. Operators should not be allowed to redress tools by hand to the angles they assume the tool originally had.

CLIMAX FURNISHES AUTHORITATIVE ENGINEERING DATA ON MOLYBDENUM APPLICATIONS.
MOLYBDIC OXIDE—BRIQUETTED OR CANNED • FERRO-MOLYBDENUM • "CALCIUM MOLYBDATE"

Climax Molybdenum Company
500 Fifth Avenue • New York City

MOLY

BOILER TUBES

Seamless Steel and Lap Weld Commercial Boiler Tubes and Locomotive Tubes Minimum Wall
(Net base prices per 100 ft., f.o.b. Pittsburgh, in carload lots)

	Seamless Cold Drawn	Seamless Hot Rolled	Lap Weld, Hot Rolled
	$	$	$
2 in. o.d. 13 B.W.G.	15.03	13.04	12.38
2½ in. o.d. 12 B.W.G.	20.21	17.54	16.58
3 in. o.d. 12 B.W.G.	22.48	19.50	18.35
3½ in. o.d. 11 B.W.G.	28.37	24.62	23.15
4 in. o.d. 10 B.W.G.	35.20	30.54	28.66

(Extras for less carload quantities)

40,000 lb. or ft. over	Base
30,000 lb. or ft. to 39,999 lb. or ft.	5%
20,000 lb. or ft. to 29,999 lb. or ft.	10%
10,000 lb. or ft. to 19,999 lb. or ft.	20%
5,000 lb. or ft. to 9,999 lb. or ft.	30%
2,000 lb. or ft. to 4,999 lb. or ft.	45%
Under 2,000 lb. or ft.	65%

CAST IRON WATER PIPE

	Per Net Ton
6-in. and larger, del'd Chicago	$54.80
6-in. and larger, del'd New York	52.20
6-in. and larger, Birmingham	46.00
6-in. and larger f.o.b. cars, San Francisco or Los Angeles	69.40
6-in. and larger f.o.b. cars, Seattle	71.20

Class "A" and gas pipe, $3 extra; 4-in. pipe is $3 a ton above 6-in. Prices shown are for lots of less than 200 tons. For 200 tons or over, 6-in. and larger is $45 at Birmingham and $53.80 delivered Chicago. $59.40 at San Francisco and Los Angeles, and $70.20 at Seattle.

RAILS, TRACK SUPPLIES

(F.o.b. Mill)

Standard rails, heavier than 60 lb., gross ton	$40.00
Angle bars, 100 lb.	2.70
(F.o.b. Basing Points)	*Per Gross Ton*
Light rails (from billets)	$40.00
Light rails (from rail steel)	39.00
	Base per Lb.
Cut spikes	3.00c.
Screw spikes	5.15c.
Tie plates, steel	2.15c.
Tie plates, Pacific Coast	2.30c.
Track bolts	4.75c.
Track bolts, heat treated, to railroads	5.00c.
Track bolts, jobbers discount	63-5

Basing Points, light rails—Pittsburgh, Chicago, Birmingham; spikes and tie plates—Pittsburgh, Chicago, Portsmouth, Ohio, Weirton, W. Va., St. Louis, Kansas City, Minnequa, Colo., Birmingham and Pacific Coast ports; tie plates alone—Steelton, Pa., Buffalo; spikes alone—Youngstown, Lebanon, Pa., Richmond

FERROALLOYS

Ferromanganese

F.o.b. New York, Philadelphia, Baltimore, Mobile or New Orleans, Domestic, 80%, per gross ton (carloads) $135.00

Spiegeleisen

Per Gross Ton Furnace

Domestic, 19 to 21%	$36.00
Domestic, 26 to 28%	49.50

Electric Ferrosilicon

(Per Gross Ton, Delivered Lump Size)

50% (carload lots, bulk)	$74.50
50% (ton lots, packed)	87.00
75% (carload lots, bulk)	135.00
75% (ton lots, packed)	151.00

Silvery Iron

(Per Gross Ton, base 6.00 to 6.50 Si)

F.o.b. Jackson, Ohio $29.50*
Buffalo 30.75*
For each additional 0.50% silicon add $1 a ton. For each 0.50% manganese over 1% add 50c. a ton. Add $1 a ton for 0.75% phosphorus or over.
*Official OPA price established June 24, 1941.

Bessemer Ferrosilicon

Prices are $1 a ton above Silvery Iron quotations of comparable analysis.

Ferrochrome

(Per Lb., Contained Cr, Delivered Carlots, Lump Size, on Contract)

4 to 6 carbon	13.00c.
2 carbon	19.50c.
1 carbon	20.50c.
0.10 carbon	22.50c.
0.06 carbon	23.00c.

Spot prices are ¼c. per lb. of contained chromium higher.

Silico-Manganese

(Per Gross Ton, Delivered, Carloads, Bulk)

3 carbon	$120.00
2.50 carbon	125.00
2 carbon	130.00
1 carbon	140.00

Other Ferroalloys

Ferrotungsten, per lb. contained W, del'd carload	$2.00
Ferrotungsten, 100 lb. and less	2.25
Ferrovanadium, contract, per lb. contained V, del'd	$2.70 to $2.90†
Ferrocolumbium, per lb. contained Cb, f.o.b. Niagara Falls, N. Y., ton lots	$2.25†
Ferrocarbontitanium, 15-18 Ti, 7-8 C, f.o.b. furnace, carload contract, net ton	$142.50
Ferrocarbontitanium, 17-20 Ti, 3-5 C, f.o.b. furnace, carload contract, net ton	$157.50
Ferrophosphorus, electric or blast furnace materials, carloads, f.o.b. Anniston, Ala., for 18%, with $3 unitage freight, equaled with Rockdale, Tenn., gross ton	$58.50
Ferrophosphorus, electrolytic 23-26%, carlots, f.o.b. Monsanto (Siglo), Tenn., $3 unitage, freight equalized with Nashville, gross ton	$75.00
Ferromolybdenum, per lb., Mo, f.o.b. furnace	95c.
Calcium molybdate, per lb. Mo., f.o.b. furnace	80c.
Molybdenum oxide briquettes 48-52 Mo, per lb. contained Mo, f.o.b. Langeloth, Pa.	80c.
Molybdenum oxide, in cans, per lb. contained Mo, f.o.b. Langeloth, and Washington, Pa.	80c.

*Spot prices are $5 per ton higher.
†Spot prices are 10c. per lb. of contained element higher.

FLUORSPAR

	Per Net Ton
Domestic washed gravel, 85-5 f.o.b. Kentucky and Illinois mines, all rail	$25.00
Domestic, f.o.b. Ohio River landing barges	25.00
No. 2 lump, 85-5 f.o.b. Kentucky and Illinois mines	25.00
Foreign, 85% calcium fluoride, not over 5% Ci, c.i.f. Atlantic ports, duty paid	Nominal
Domestic No. 1 ground bulk, 95 to 98%, calcium fluoride, not over 2½% silicon, f.o.b. Illinois and Kentucky mines	$34.00
As above, in bags, f.o.b. same mines	36.40

REFRACTORIES

(F.o.b. Works)

Fire Clay Brick

	Per 1000
Super-duty brick, St. Louis	$64.60
First quality, Pennsylvania, Maryland, Kentucky, Missouri and Illinois	51.30
First quality, New Jersey	56.00
Second quality, Pennsylvania, Maryland, Kentucky, Missouri and Illinois	46.55
Second quality, New Jersey	51.00
No. 1, Ohio	43.00
Ground fire clay, net ton	7.60

Silica Brick

Pennsylvania	$51.30
Chicago District	58.90
Birmingham	51.30
Silica cement, net ton (Eastern)	9.00

Chrome Brick

	Per Net Ton
Standard, f.o.b. Baltimore, Plymouth Meeting and Chester	$54.00
Chemically bonded, f.o.b. Baltimore, Plymouth Meeting and Chester Pa.	54.00

Magnesite Brick

Standard f.o.b. Baltimore and Chester	$76.00
Chemically bonded, f.o.b. Baltimore	65.00

Grain Magnesite

Domestic, f.o.b. Baltimore and Chester in sacks (carloads)	$44.00
Domestic, f.o.b. Chewelah, Wash. (in bulk)	22.00

ORES

Lake Superior Ores (51.50% Fe.)

(Delivered Lower Lake Ports)

	Per Gross Ton
Old range, bessemer, 51.50	$4.75
Old range, non-bessemer, 51.50	4.60
Mesaba, bessemer, 51.50	4.60
Mesaba, non-bessemer, 51.50	4.45
High phosphorus, 51.50	4.35

*Foreign Ores**

(C.i.f. Philadelphia or Baltimore, Exclusive of Duty)

	Per Unit
African, 46-48 Mn	78c. to 80c.
Indian, 48-50 Mn	75c.
Brazilian, 46-48 Mn	81c. to 83c.
Cuban, 51 Mn	85c.
	Per Short Ton Unit
Tungsten, Chinese, Wolframite, duty paid, delivered	$24 to $26
Tungsten, domestic scheelite, at mine	$24 to $25
Chrome ore, lump, c.i.f. Atlantic Seaboard, per gross ton; South African (low grade)	$28 to $30
Rhodesian, 45	Nom.
Rhodesian, 48	Nom.

*Importations no longer readily available. Prices shown are nominal.

COKE*

Furnace

	Per Net Ton
†Connellsville, prompt	$6.00

Foundry

†Connellsville, prompt ..... $6.75 to $7.00
*Maximum by-product coke prices established by OPA became effective Oct. 1, 1941. A complete schedule of the ceiling prices was published in THE IRON AGE, Sept. 25, p. 94B. Maximum beehive furnace coke prices established by OPA, Jan. 26. †F.O.B. oven.

By-product, Chicago	$12.25
By-product, New England	$13.75
By-product, Newark	$12.40 to $12.95
By-product, Philadelphia	$12.38
By-product, Cleveland	$12.30
By-product, Cincinnati	$11.75
By-product, Birmingham	$8.50†
By-product, St. Louis	$12.02
By-product, Buffalo	$12.50

FUEL OIL

No. 6 Bur. Stsd., del'd Chicago	4.75c.
No. 3 distillate del'd Cleveland	6.50c.
No. 4 indus., del'd Cleveland	6.00c.
No. 5 indus., del'd Cleveland	5.25c.
No. 6 indus., del'd Cleveland	5.25c